VPDES PERMIT PROGRAM FACT SHEET
FILE NO: 106

This document gives pertinent information concerning the VPDES Permit listed below. This permit is being processed as a **MINOR MUNICIPAL** permit.

1. **PERMIT NO.**: VA0021288 **EXPIRATION DATE**: 9/20/09

2. **FACILITY NAME AND LOCAL MAILING ADDRESS**

Cape Charles WWTP
2 Plum Street
Cape Charles, VA 23310

FACILITY LOCATION ADDRESS (IF DIFFERENT)

1270 Bayshore Rd.
Cape Charles, VA 23310

CONTACT AT FACILITY:
NAME: Mr. Dave Fauber
TITLE: Director of Public Utilities
PHONE: 757-331-2176

CONTACT AT LOCATION ADDRESS
NAME:
TITLE:
PHONE:

3. **OWNER CONTACT**: (TO RECEIVE PERMIT)
NAME: Mr. Dave Fauber
TITLE: Director of Public Utilities
COMPANY NAME: Town of Cape Charles
ADDRESS: 2 Plum Street
Cape Charles, VA 23310
PHONE: (757) 331-2176

CONSULTANT CONTACT: NA
NAME:
FIRM NAME:

4. **PERMIT DRAFTED BY**: DEQ, Water Permits, Regional Office

Permit Writer(s): Sauer (W) Date(s): July, 2009
Reviewed By: McConathy Date(s): 7/10/09

5. **PERMIT ACTION:**

( ) Issuance (X) Reissuance ( ) Revoke & Reissue ( ) Owner Modification
( ) Board Modification ( ) Change of Ownership/Name [Effective Date:]

6. **SUMMARY OF SPECIFIC ATTACHMENTS LABELED AS:**

Attachment 1	Site Inspection Report/Memorandum
Attachment 2	Discharge Location/Topographic Map
Attachment 3	Schematic/Plans & Specs/Site Map/Water Balance
Attachment 4	TABLE I - Discharge/Outfall Description
Attachment 5	TABLE II - Effluent Monitoring/Limitations
Attachment 6	Effluent Limitations/Monitoring Rationale/Suitable Data/Antidegradation/Antibacksliding
Attachment 7	Special Conditions Rationale
Attachment 8	Material Stored
Attachment 9	Receiving Waters Info./Tier Determination/STORET Data/Stream Modeling / 303(d) Listed Segments
Attachment 10	TABLE III(a) and TABLE III(b) - Change Sheets
Attachment 11	NPDES Industrial Permit Rating Worksheet and EPA Permit Checklist
Attachment 12	Chronology Sheet
Attachment 13	Pertinent Correspondence / Public Participation

APPLICATION COMPLETE: ~~waiting on VDH~~ (ms) 7/23/09, upon VDH

7. **PERMIT CHARACTERIZATION**: (Check as many as appropriate)

(X) Existing Discharge
( ) Proposed Discharge
(X) Municipal
SIC Code(s) 4952
( ) Industrial
SIC Code(s)
(X) POTW
( ) PVOTW
( ) Private
( ) Federal
( ) State
( ) Publicly-Owned Industrial

(X) Effluent Limited
(X) Water Quality Limited
( ) WET Limit
( ) Interim Limits in Permit
( ) Interim Limits in Other Document
( ) Compliance Schedule Required
( ) Site Specific WQ Criteria
( ) Variance to WQ Standards
( ) Water Effects Ratio
(X) Discharge to 303(d) Listed Segment
( ) Toxics Management Program Required
( ) Toxics Reduction Evaluation
( ) Storm Water Management Plan
( ) Pretreatment Program Required
( ) Possible Interstate Effect
(X) CBP Significant Dischargers List

8. **RECEIVING WATERS CLASSIFICATION**: River basin information:

Outfall No. 001

Receiving Stream:	Cape Charles Harbor
River Mile:	CCH 0.58
Basin:	Chesapeake Bay, Atlantic and Small Coastal
Subbasin:	NA
Section:	2
Class:	II
Special Standard(s):	a, NEW 20
Tidal:	YES

9. **FACILITY DESCRIPTION:** Describe the type facility from which the discharges originate.

Existing municipal discharge resulting from the discharge of treated domestic sewage and storm water from a municipal wastewater treatment plant.

10. **LICENSED OPERATOR REQUIREMENTS**: ( ) No (X) Yes Class: III at existing plant, Class II with upgrade.

11. **RELIABILITY CLASS**: **I**

12. **SITE INSPECTION DATE**: 4/18/08 **REPORT DATE**: 4/21/08

Performed By: S. Thomas

SEE ATTACHMENT 1

13. **DISCHARGE(S) LOCATION DESCRIPTION**: Provide USGS Topo which indicates the discharge location, significant (large) discharger(s) to the receiving stream, water intakes, and other items of interest.

Name of Topo: Cape Charles Quad 94D **SEE ATTACHMENT 2**

14. **ATTACH A SCHEMATIC OF THE WASTEWATER TREATMENT SYSTEM(S) [IND. & MUN.]. FOR INDUSTRIAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE PRODUCTION CYCLE(S) AND ACTIVITIES. FOR MUNICIPAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE TREATMENT PROVIDED.**

SEE ATTACHMENT 3

15. **DISCHARGE DESCRIPTION**: Describe each discharge originating from this facility.

SEE ATTACHMENT 4

16. **COMBINED TOTAL FLOW**:

TOTAL: 0.25 MGD (for public notice)

NONPROCESS/RAINFALL DEPENDENT FLOW: _____ (Est.)

DESIGN FLOW: 0.25 MGD (MUN.)

17. **STATUTORY OR REGULATORY BASIS FOR EFFLUENT LIMITATIONS AND SPECIAL CONDITIONS**: (Check all which are appropriate)

X State Water Control Law
X Clean Water Act
X VPDES Permit Regulation (9 VAC 25-31-10 et seq.)
X EPA NPDES Regulation (Federal Register)
X EPA Effluent Guidelines (40 CFR 133 or 400 - 471)
X Water Quality Standards (9 VAC 25-260-5 et seq.)
X Wasteload Allocation from a TMDL or River Basin Plan

18. **EFFLUENT LIMITATIONS/MONITORING**: Provide all limitations and monitoring requirements being placed on each outfall.

SEE TABLE II - ATTACHMENT 5

19. **EFFLUENT LIMITATIONS/MONITORING RATIONALE**: Attach any analyses of an outfall by individual toxic parameter. As a minimum, it will include: statistics summary (number of data values, quantification level, expected value, variance, covariance, 97th percentile, and statistical method); wasteload allocation (acute, chronic and human health); effluent limitations determination; input data listing. Include all calculations used for each outfall and set of effluent limits and those used in any model(s). Include all calculations/documentation of any antidegradation or anti-backsliding issues in the development of any limitations; complete the review statements below. Provide a rationale for limiting internal waste streams and indicator pollutants. Attach chlorine mass balance calculations, if performed. Attach any additional information used to develop the limitations, including any applicable water quality standards calculations (acute, chronic and human health).

OTHER CONSIDERATIONS IN LIMITATIONS DEVELOPMENT:

VARIANCES/ALTERNATE LIMITATIONS: Provide justification or refutation rationale for requested variances or alternatives to required permit conditions/limitations. This includes, but is not limited to: waivers from testing requirements; variances from technology guidelines or water quality standards; WER/translator study consideration; variances from standard permit limits/conditions.

N/A

SUITABLE DATA: In what, if any, effluent data were considered in the establishment of effluent limitations and provide all appropriate information/calculations.

All suitable effluent data were reviewed.

ANTIDEGRADATION REVIEW: Provide all appropriate information/calculations for the antidegradation review.

The receiving stream has been classified as tier 1; therefore, no further review is needed. Permit limits have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

ANTIBACKSLIDING REVIEW: Indicate if antibacksliding applies to this permit and, if so, provide all appropriate information.

There are no backsliding issues to address in this permit (i.e., limits as stringent or more stringent when compared to the previous permit).

SEE ATTACHMENT 6

20. **SPECIAL CONDITIONS RATIONALE**: Provide a rationale for each of the permit's special conditions.

SEE ATTACHMENT 7

21. **TOXICS MONITORING/TOXICS REDUCTION AND WET LIMIT SPECIAL CONDITIONS RATIONALE**: Provide the justification for any toxics monitoring program and/or toxics reduction program and WET limit.

SEE ATTACHMENT N/A

22. **SLUDGE DISPOSAL PLAN**: Provide a description of the sludge disposal plan (e.g., type sludge, treatment provided and disposal method). Indicate if any of the plan elements are included within the permit.

Sludge from the WWTP is dried in drying beds and trucked to the Northampton County Landfill. A sludge belt filter press will be added to the treatment system with the upgrade.

23. **MATERIAL STORED**: List the type and quantity of wastes, fluids, or pollutants being stored at this facility. Briefly describe the storage facilities and list, if any, measures taken to prevent the stored material from reaching State waters.

SEE ATTACHMENT 8

24. **RECEIVING WATERS INFORMATION**: Refer to the State Water Control Board's Water Quality Standards [e.g., River Basin Section Tables (9 VAC 25-260-5 et seq.). **Use 9 VAC 25-260-140 C (introduction and numbered paragraph) to address tidal waters where fresh water standards would be applied or transitional waters where the most stringent of fresh or salt water standards would be applied.** Attach any memoranda or other information which helped to develop permit conditions (i.e. tier determinations, PReP complaints, special water quality studies, STORET data and other biological and/or chemical data, etc.

SEE ATTACHMENT 9

25 305(b)/**303(d) Listed Segments**: Indicate if the facility discharges to a segment that is listed on the current 303(d) list and, if so, provide all appropriate information/calculations.

This facility discharges directly to Cape Charles Harbor. This receiving stream segment has been listed in Category 5 of the 305(b)/303(d) list for non-attainment of shallow water submerged aquatic vegetation use, dissolved oxygen, enterococcus. A TMDL has not been prepared or approved for this stream segment. The permit has water quality-based limits for dissolved oxygen and enterococcus which have been achieved and require compliance with the standard prior to discharge. Given these limits, this facility can neither cause or contribute to the observed violation of the standards. The permit contains a TMDL reopener clause which will allow these limits to be modified, in compliance with Section 303(d)(4) of the Act once a TMDL is approved.

26. **CHANGES TO PERMIT**: Use **TABLE III(a)** to record any changes from the previous permit and the rationale for those changes. Use **TABLE III(b)** to record any changes made to the permit during the permit processing period and the rationale for those changes [i.e., use for comments from the applicant, VDH, EPA, other agencies and/or the public where comments resulted in changes to the permit limitations or any other changes associated with the special conditions or reporting requirements].

SEE ATTACHMENT 10

27. **NPDES INDUSTRIAL PERMIT RATING WORKSHEET:**

N/A - This is a municipal facility.

28. **DEQ PLANNING COMMENTS RECEIVED ON DRAFT PERMIT**: Document any comments received from DEQ planning.

The discharge is in conformance with the existing planning documents for the area.

29. **PUBLIC PARTICIPATION:** Document comments/responses received during the public participation process. If comments/responses provided, especially if they result in changes to the permit, place in the attachment.

VDH/DSS COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the Virginia Dept. of Health and the Div. of Shellfish Sanitation and noted how resolved.

The VDH reviewed the application and waived their right to comment and/or object on the adequacy of the draft permit.

The DSS provided comments by letter dated July 20, 2009. The DSS stated that the project will go to condemned shellfish waters and will not cause an increase in the size or type of the existing closure.

EPA COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the U.S. Environmental Protection Agency and noted how resolved.

EPA waived the right to comment and/or object to the adequacy of the draft permit.

ADJACENT STATE COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from an adjacent state and noted how resolved.

Not Applicable.

OTHER AGENCY COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from any other agencies (e.g., VIMS, VMRC, DGIF, etc.) and noted how resolved.

Not Applicable.

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation, and no comments were received. The Chesapeake Bay Foundation requested a copy of the draft permit and was provided a copy to review; the Foundation did not comment on the draft permit.

PUBLIC NOTICE INFORMATION: Comment Period: Start Date August 19, 2009
End Date September 18, 2009

Persons may comment in writing or by e-mail to the DEQ on the proposed issuance/reissuance/modification of the permit within 30 days from the date of the first notice. Address all comments to the contact person listed below. Written or e-mail comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The Director of the DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requestor's interests would be directly and adversely affected by the proposed permit action.

All pertinent information is on file and may be inspected, and arrangements made for copying by contacting Mark H. Sauer at: Department of Environmental Quality (DEQ), Tidewater Regional Office, 5636 Southern Boulevard, Virginia Beach, VA 23462. Telephone: 757-518-2105 E-mail: mark.sauer@deq.virginia.gov

Following the comment period, the Board will make a determination regarding the proposed issuance/reissuance/modification. This determination will become effective, unless the Director grants a public hearing. Due notice of any public hearing will be given.

30. **ADDITIONAL FACT SHEET COMMENTS/PERTINENT INFORMATION:**

ATTACHMENT 1

SITE INSPECTION REPORT/MEMORANDUM

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
5636 SOUTHERN BOULEVARD
VIRGINIA BEACH, VIRGINIA 23462
RECONNAISSANCE INSPECTION REPORT

FACILITY NAME: **Town of Cape Charles WWTP**	PERMIT NUMBER: **VA0021288**
FACILITY ADDRESS: **2 Plum Street, Cape Charles, VA 23310**	
INSPECTION DATE: **4/18/2008**	REPORT DATE: **4/21/2008**
INSPECTOR: **Stephen J. Thomas**	REVIEWER: **Kenneth T. Raum** KTR
PRESENT AT INSPECTION: **Patrick Christman, Freddie Medtiz & Shannon Miller**	

GENERAL OBSERVATIONS
This inspection was performed to see if deficiencies noted during the inspection conducted on 8/29/2007 had been resolved. Please see attached memo from Cape Charles.
1. Update of O & M manual by 6/2008. Please provide copies of manual for approval to DEQ by 6/2008.
2. Remove all floating vegetation from the polishing pond. The vegetation has been removed. The solids level in the pond was not checked. An accident occurred during the removal of vegetation from the pond, which resulted in a tear in the protective liner. The tear needs to be repaired.
3. The town has hired a operator trainee and is providing training at this time.
4. The town has started Enterococci analysis.
5. Mason Avenue Pump Station maintenance. All the repair work has been completed at this station. I would like to commend the town on the work performed and the greatly improved operations at this station.
6. Ferric chloride addition used for phosphorus removal appears to be an ongoing problem at the time of this inspection.
7. The town has taken many steps to reduce the excess solids in the system, but it must be an ongoing process. The solids in the system appeared old and the tanks appeared to be oxygen deficient. The operator could not tell me what the D.O. level in the digesters were.

UNIT DESCRIPTION	GENERAL CONDITION			COMMENTS
	GOOD	FAIR	POOR	
Mason Avenue Pump station	x			All equipment was found in good working order.
Contact Stabilization Units		x		Solids in unit were grey in color.
Aerobic Digesters			x	The solids content of the units were dark gray in color.
Ferric Chloride Feed			x	Units were not operating. #1 unit had run out of Chemical. # 2 pump was not operating.
Sludge Drying Beds		x		All beds in use.
Polishing pond		x		Floating vegetation has been removed.
UV Disinfection Unit		x		Unit operating properly.

FACILITY: **Cape Charles WWTP**	PERMIT NUMBER: **VA0021288**

FIELD ANALYSIS - FINAL EFFLUENT				
D.O.: **8.2** **mg/l**	pH: **7.5** **S.U.**	TRC: **mg/l**	FLOW: **.102** **MGD**	TEMP.: **17.2** **°C**

INSPECTION VIOLATIONS			
ILLEGAL DISCHARGE		CHLORINE RESIDUAL VIOLATION	
D.O. VIOLATION		pH VIOLATION	
SLUDGE DISPOSAL VIOLATION		OTHER VIOLATION	
DESCRIPTION OF VIOLATION (S) NOTED:			

OUTFALL/RECEIVING WATER CONDITION OBSERVATIONS
The final effluent appeared normal; it was clear and contained no visible solids at the time of the inspection.
WATER BODY AFFECTED: **Cape Charles Harbor**

INSPECTION DEFECIENCES THAT NEED CORRECTION.
1. The dissolved oxygen in the aeration tanks and digesters must be maintained in an aerobic condition. The dark grey to black color of the biomass indicates low dissolved oxygen conditions. The D.O. needs to be checked on a routine basis to insure proper operating conditions. Please provide current D.O. levels and TSS concentrations in the contact unit and digesters. When is the last time the aeration system has been inspected and cleaned?
2. Ferric Chloride was not being fed into the activated sludge contact units at the time of the inspection. The feed to unit # 1 had run out of ferric chloride, the drum was empty. The metering pump on the # 2 unit is in need of repair and was not in operation. The # 2 pump was also not functioning during the inspection on 6/5/2007. Please provide information on why the # 2 pump is not working and why it has not been replaced. How often is the system checked for routine problems? How long has the drum for the # 1 contact unit been dry? How many gallons of ferric chloride has been used in the time period of March 2007 to March 2008? What is the current ferric Chloride feed rate?
3. The tear in the polishing pond liner must be repaired. The entire liner for the pond needs to be inspected for other liner damage. The pond can be taken off line and pumped down to facilitate inspection and repair.

SAMPLES TAKEN? (INCLUDE DCLS LAB SHEETS)	YES		NO	x
PHOTOGRAPHS TAKEN?	YES	x	NO	

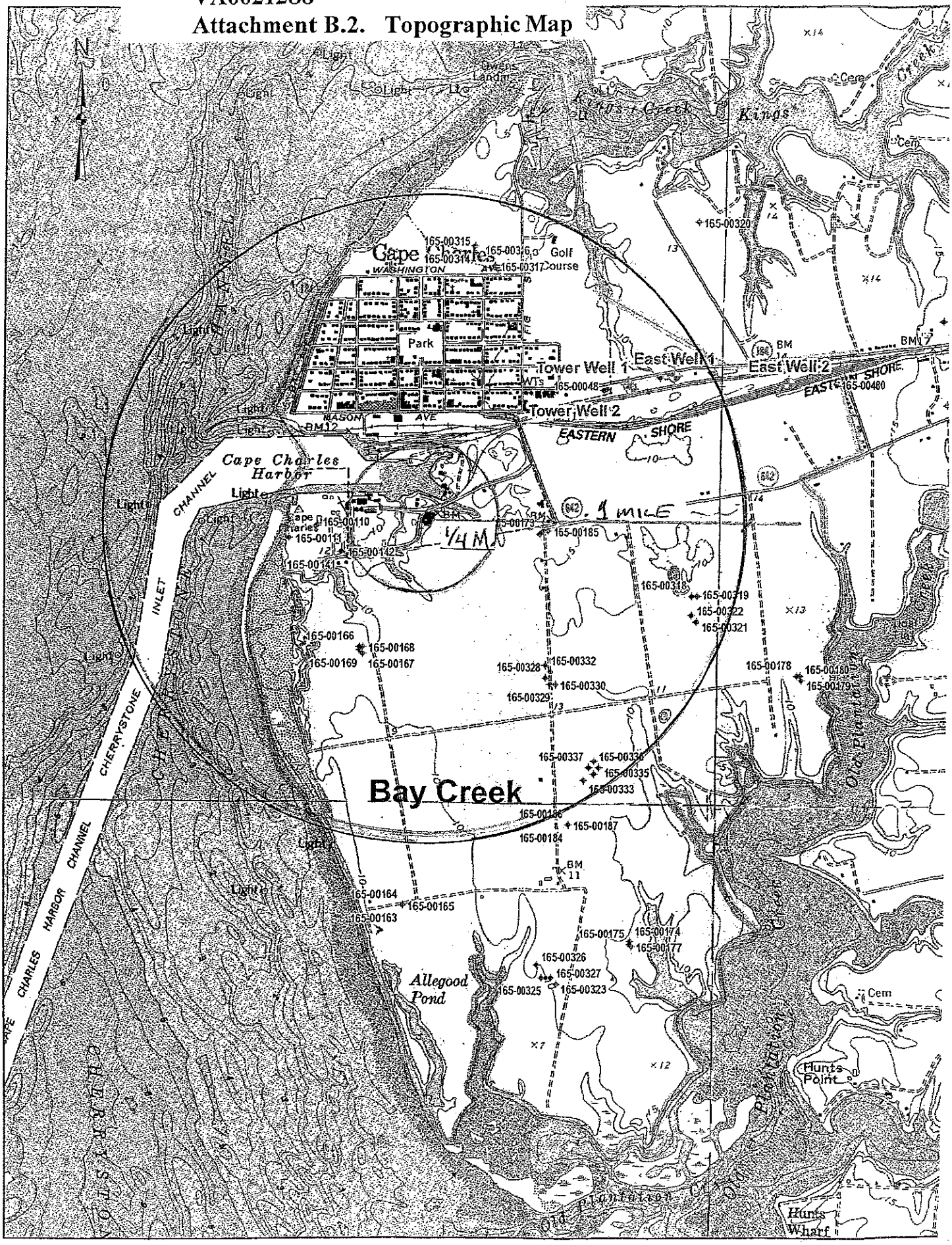
COPIES:

TIDEWATER REGIONAL OFFICE	X	COMPLIANCE AUDITOR		OTHER	
V.D.H. - RICHMOND		OWNER	X	OTHER	
OWCP	x	OPERATOR		OTHER	

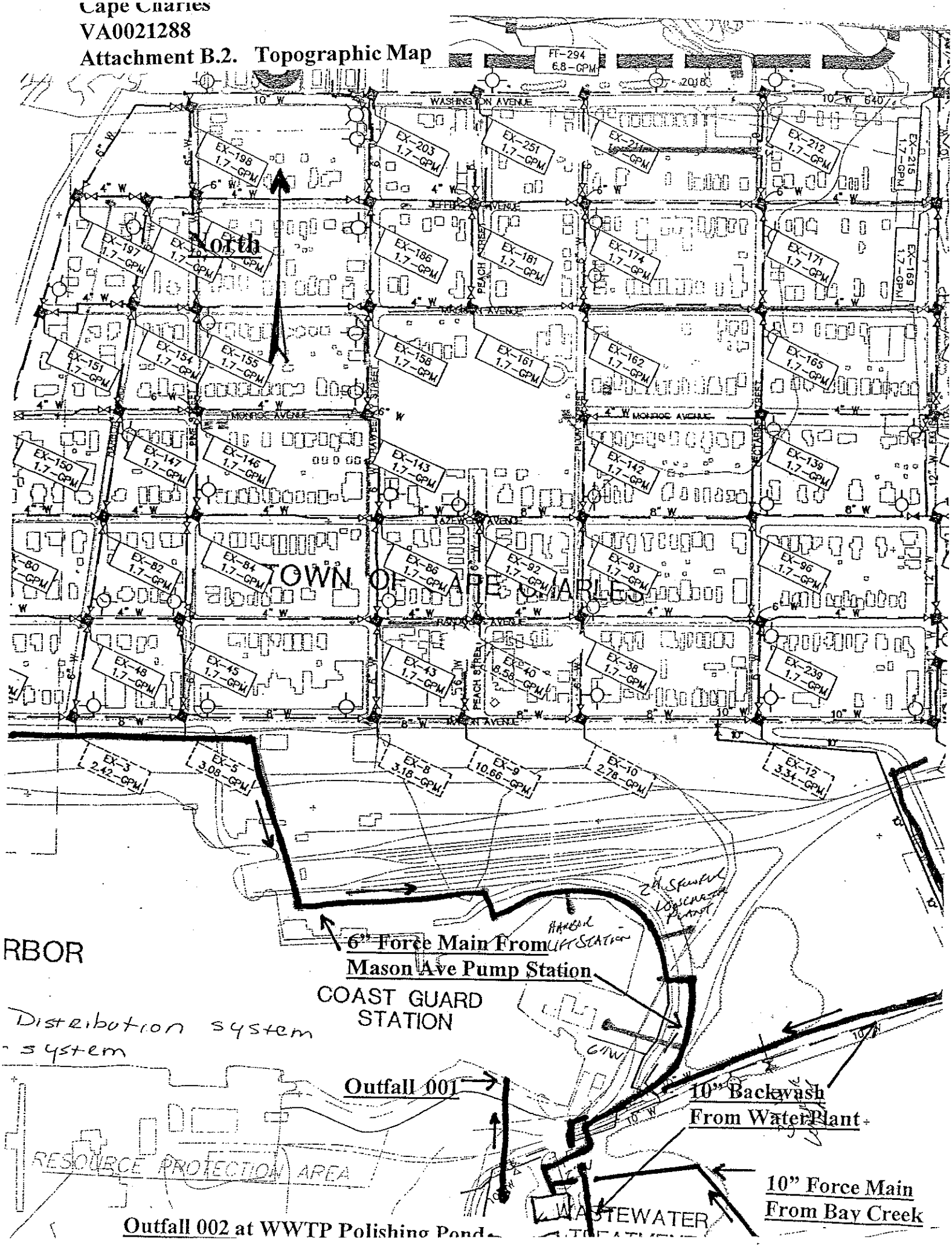
ATTACHMENT 2

DISCHARGE LOCATION/TOPOGRAPHIC MAP

Cape Charles
VA0021288
Attachment B.2. Topographic Map

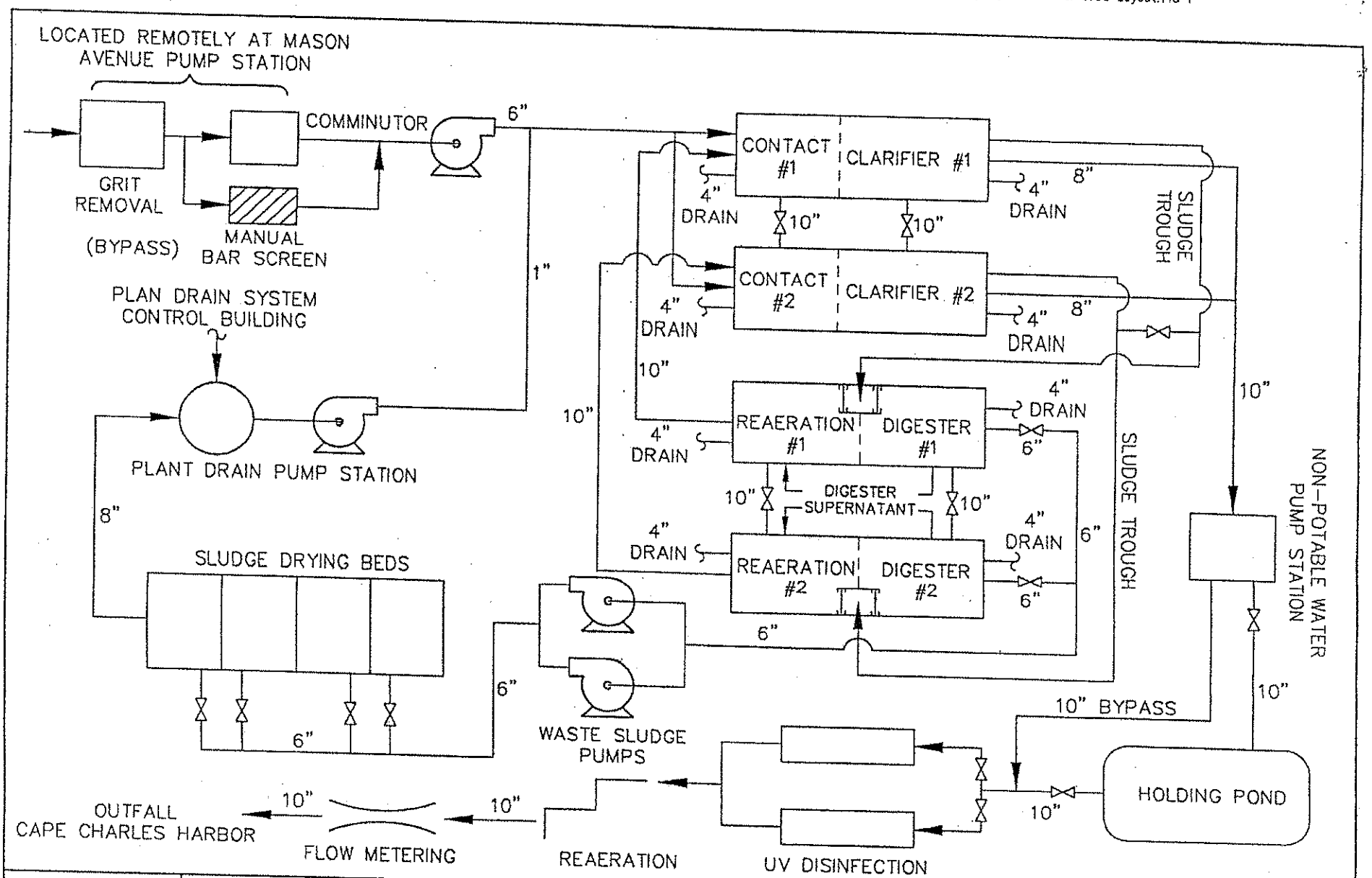


Cape Charles
VA0021288
Attachment B.2. Topographic Map



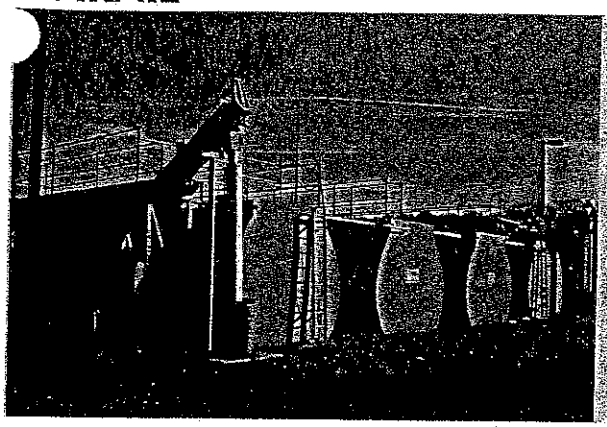
ATTACHMENT 3

SCHEMATIC/PLANS & SPECS/SITE MAP/ WATER BALANCE



MALCOLM PIRNIE	TOWN OF CAPE CHARLES, VIRGINIA DEPARTMENT OF PUBLIC UTILITIES BASIS OF DESIGN REPORT GRANT NUMBER: 440-5-05-05	CAPE CHARLES WASTEWATER TREATMENT PLANT PROCESS FLOW DIAGRAM	MALCOLM PIRNIE, INC. MARCH 2005 FIGURE 1

MALCOLM PIRNIE



SECTION 2

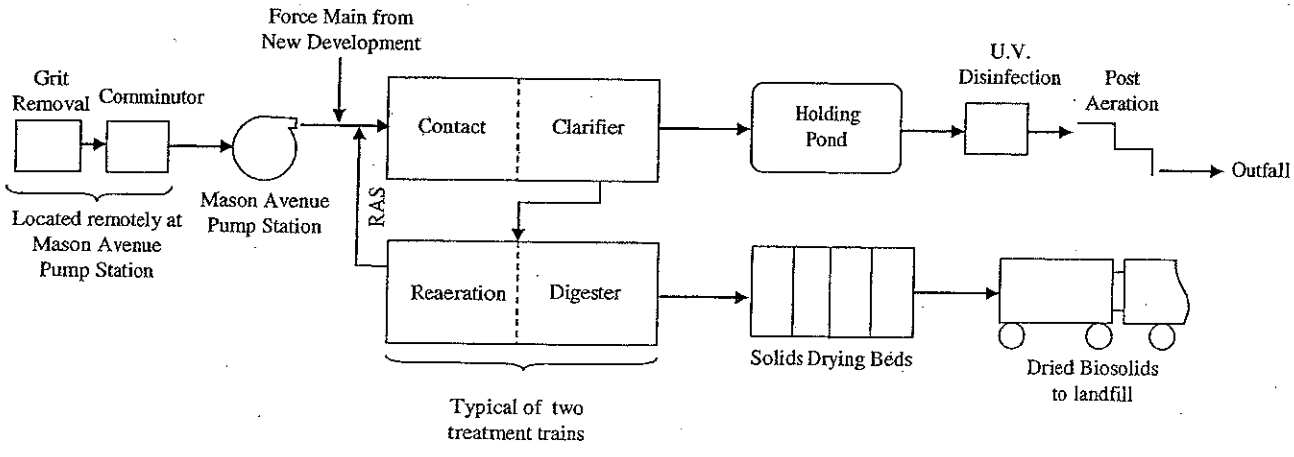
Wastewater Treatment Facility Description

Facility Description

The Cape Charles Wastewater Treatment Facility (WWTF) was constructed in 1983 with a design treatment capacity of 0.25 MGD. The original design included expansion capabilities to 0.50 MGD with an ultimate design flow of 0.75 MGD. The WWTF consists of two treatment trains, each designed to treat 0.125 MGD. The treatment system includes contact stabilization, clarification, a polishing pond, and ultraviolet (UV) disinfection. The treated wastewater flow is discharged through an effluent flow meter to the Cape Charles Harbor and the Chesapeake Bay. Figure 2 - 1 illustrates the treatment process. The following paragraphs present detailed descriptions of the individual treatment processes. Additionally, a Process Design Summary Table detailing the facility's equipment specifications is included in Appendix C.

FIGURE 2 – 1

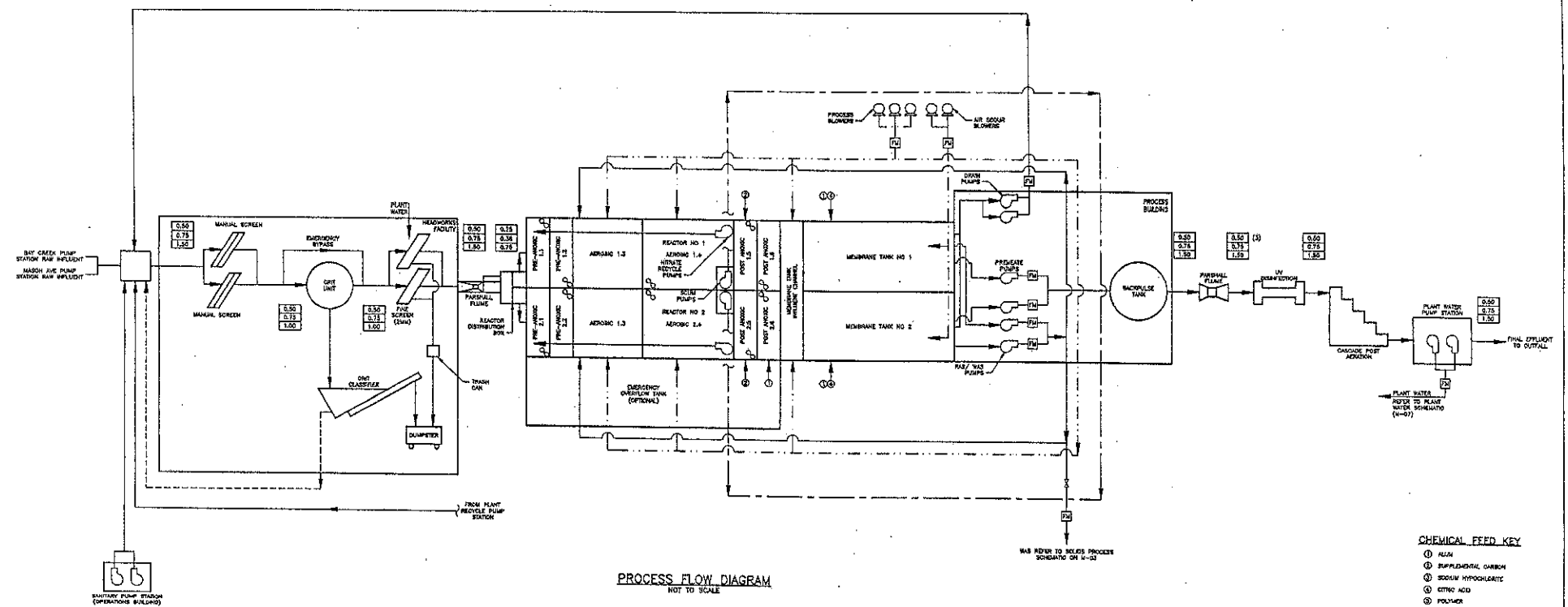
Treatment Facility Process Flow Diagram



B.3. Existing Plant

Cape Charles WWTP
VPDES Permit #0021288

FOR INFORMATIONAL PURPOSES ONLY



PROCESS FLOW DIAGRAM
NOT TO SCALE

CHEMICAL FEED KEY
1. ALUM
2. SUPPLEMENTAL CARBON
3. SODIUM HYPOCHLORITE
4. CITRIC ACID
5. POLYMER

LEGEND
WASTEWATER
SLUDGE/SCUM
BYPASS
DRAIN
PROCESS AIR
NEW
FUTURE
MOTORIZED VALVE
VALVE
CHECK VALVE
PUMP
BLOWER
SAMPLE POINT
MIXER
FLOWMETER
NITRATE PROBE

NOTES:
1. DIAGRAM DOES NOT INCLUDE RECYCLE FLOWS WHICH TOTAL APPROXIMATELY 0.63 MGD THROUGH THE PLANT.
2. CURRENT PEAK FLOWS ARE 0.75 MGD. ALL PROCESSES BEHIND THE BIOLOGICAL TREATMENT TRAINS WILL BE SIZED TO PASS A FUTURE PEAK FLOW OF 1.50 MGD.
3. CHANNEL WILL BE SIZED TO PASS FUTURE PEAK FLOWS. HOWEVER, CURRENT UV SYSTEM WILL BE DESIGNED TO TREAT A CURRENT PEAK FLOW OF 0.75 MGD. ADDITIONAL BULBS WILL BE ADDED IN THE FUTURE TO TREAT FUTURE PEAK FLOW OF 1.50 MGD.

FLOW KEY (MGD)
X.XX AVERAGE DAILY FLOW
X.XX MAX MONTH FLOW
X.XX PEAK HOUR FLOW

NOTES:
Underground facilities, structures, and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known. Anyone using utility information and data provided herein shall "Call before you dig" at 1-800-552-7001 forty eight (48) hours, 2 business days in advance to verify the location of utilities prior to start of construction.

REV. NO.	DRAWN	DATE	CHECKED	DESIGNER	APPROVED	DATE
1	FOR PRELIMINARY REVIEW					
PROJECT SUPERVISOR			DEPARTMENT SUPERVISOR			

ISSUE NO.	DRAWN	DATE	CHECKED	DESIGNER	APPROVED	DATE

STEARNS & WHELER LLC
Environmental Engineers & Scientists
RICHMOND, VIRGINIA

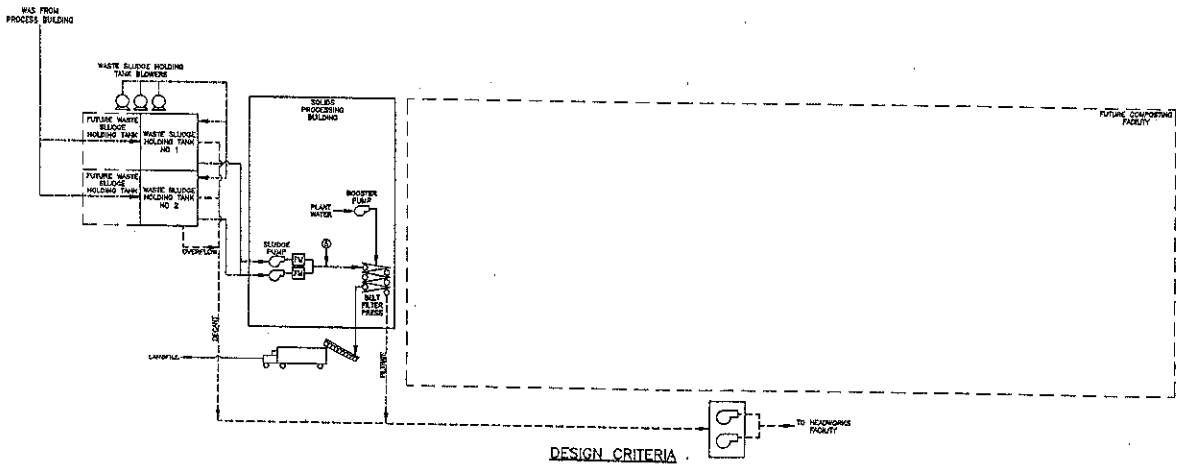
TOWN OF CAPE CHARLES, VIRGINIA
CAPE CHARLES WWTP NUTRIENT REMOVAL UPGRADE AND EXPANSION
PLANT PROCESS FLOW DIAGRAM
LIQUID TRAIN

JOB NO. 81168 | CONTRACT NO. XXXX | DRAWING M-02

B.3. Proposed Plant

Cape Charles WWTP
VPDES Permit #0021288

FOR INFORMATIONAL PURPOSES ONLY



DESIGN CRITERIA

LEGEND
- SLUDGE/ SCUM
- PROPOSED
- DRAIN
- PROCESS AIR
- FUTURE
- VALVE
- BLOWER
- PUMP
- FLOATING MIXER
- TELESCOPING VALVE
- SAMPLE POINT
- FLOWMETER
- SCREW CONVEYOR
- TRUCK

CHEMICAL FEED KEY
1. ALUM
2. SUPPLEMENTAL CARBON
3. SODIUM HYPOCHLORITE
4. CITRIC ACID
5. POLYMER

NOTES:
Underground facilities, structures, and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known. Anyone using utility information and data provided herein, shall "Call before you dig" at 1-800-552-7001 forty eight (48) hours, 2 business days in advance to verify the location of utilities prior to start of construction.

ISSUE NO.	DRAWN	DATE	CHECKED	DESIGNER	APPROVED	DATE
1	FOR PRELIMINARY REVIEW					

PROJECT SUPERVISOR — DEPARTMENT SUPERVISOR

ISSUE NO.	DRAWN	DATE	CHECKED	DESIGNER	APPROVED	DATE

STEARNS & WHELER LLC
Environmental Engineers & Scientists
RICHMOND, VIRGINIA

TOWN OF CAPE CHARLES, VIRGINIA
CAPE CHARLES WWTP NUTRIENT REMOVAL UPGRADE AND EXPANSION
PLANT PROCESS FLOW DIAGRAM
SOLIDS TRAIN

JOB NO. 81168 | CONTRACT NO. XXXX | DRAWING M-03

B.3. Proposed Plant

Cape Charles WWTP
VPDES Permit #0021288

ATTACHMENT 4

TABLE I - DISCHARGE/OUTFALL DESCRIPTION

TABLE I

NUMBER AND DESCRIPTION OF OUTFALLS

OUTFALL NO.	DISCHARGE LOCATION	DISCHARGE SOURCE (1)	TREATMENT (2)	FLOW (3)
001	37 15 48 N 76 01 55 W	Municipal WWTP	See Attached	0.25 MGD
101	Discharge to outfall 001	Potable water backwash	Polishing pond, UV disinfection as needed, cascade aeration	

(1) List operations contributing to flow
(2) Give brief description, unit by unit
(3) Design flow for municipal

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

_____ Primary ✓ Secondary

_____ Advanced _____ Other. Describe: _____

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	87.5	%
Design SS removal	87.5	%
Design P removal	0	%
Design N removal	0	%
Other _____	_____	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Ultra Violet Light

If disinfection is by chlorination, is dechlorination used for this outfall? _____ Yes _____ No

d. Does the treatment plant have post aeration? ✓ Yes _____ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.63	s.u.			
pH (Maximum)	8.08	s.u.			
Flow Rate	.437	MGD	.136	MGD	365
Temperature (Winter)	3.8	C	3.8	C	1
Temperature (Summer)	27	C	27	C	1

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	11	mg/l	6.62	mg/l	156	5210B	4.0 mg/l
DEMAND (Report one)	CBOD-5							
FECAL COLIFORM		645	N/CML	138	N/CML	156	9222D	0
TOTAL SUSPENDED SOLIDS (TSS)		70	mg/l	23	mg/l	156	2540-D	1%

END OF PART A.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

The Town has an approved PER for a .25 MGD plant with enhanced nutient removal MBR

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
– Begin construction	10 / 09 / 2009	___/___/____
– End construction	03 / 02 / 2011	___/___/____
– Begin discharge	03 / 23 / 2011	___/___/____
– Attain operational level	10 / 28 / 2011	___/___/____

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ✓ Yes ____No

Describe briefly: We have an approved PER for the project

B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	4.2	mg/l	1.66	mg/l	12	350.1	.20
CHLORINE (TOTAL RESIDUAL, TRC)	N/A						
DISSOLVED OXYGEN	7.82	mg/l	6.34	mg/l	365	4500-OG	Unknown
TOTAL KJELDAHL NITROGEN (TKN)	16.4	mg/l	5.18	mg/l	24	351.2	.50
NITRATE PLUS NITRITE NITROGEN	20.4	mg/l	9.01	mg/l	24	353.2	.20
OIL and GREASE	N/A						
PHOSPHORUS (Total)	7.5	mg/l	2.16	mg/l	24	365.1	.20
TOTAL DISSOLVED SOLIDS (TDS)	N/A						
OTHER							

END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

ATTACHMENT 5

TABLE II - EFFLUENT MONITORING/LIMITATIONS

TABLE II - MUNICIPAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 001 DESIGN FLOW: 0.25 MGD
Outfall Description: Municipal WWTP
SIC CODE:

() Final Limits (X) Interim Limits Effective Dates - From: Permit Issuance
To: Issuance of a CTO for the upgraded WWTP

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	1		NL	NA	NA	NL	Continuous	TI & RE*
pH (S.U.)	1		NA	NA	6.0	9.0	1/Day	Grab
CBOD5 (mg/l) [a]	1		30	45	NA	NA	3D/Week	8-Hr. comp
CBOD (kg/d)	3		28	43	NA	NA	3D/Week	8-Hr. comp
TSS (mg/l) [a]	1		30	45	NA	NA	3D/Week	8-Hr. Comp
TSS (kg/d)	3		28	43	NA	NA	3D/Week	8-Hr. comp
D.O. (mg/l)	2		NA	NA	5.0	NA	1/Day	Grab

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Fecal Coliform (N/CML)	2		200	NA	NA	NA	3D/Week (Between 10 am & 4 pm)	Grab
Enterococci (N/CML)	2		35	NA	NA	NA	3D/Week (Between 10 am & 4 pm)	Grab
Ammonia Nitrogen (NH3-N) (mg/l) [a]	2		2.4	2.4	NA	NA	1/Month	8-Hr. comp

*Totalizing, Indicating & Recording Equipment

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Parts I.B.8 and I.B.9. for quantification levels and reporting requirements, respectively.

2. The design flow of this treatment facility is 0.25 MGD.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts.
4. At least 85% removal for BOD and TSS must be attained for this effluent.

The basis for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - MUNICIPAL EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 001 DESIGN FLOW: 0.25 MGD
Outfall Description: Municipal WWTP
SIC CODE:

(X) Final Limits ( ) Interim Limits Effective Dates - From: Issuance of a CTO for the upgraded WWTP
To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	1		NL	NA	NA	NL	Continuous	TI & RE*
pH (S.U.)	1		NA	NA	6.0	9.0	1/Day	Grab
CBOD5 (mg/l) [a]	3		10	15	NA	NA	3D/Week	8-Hr. comp
CBOD (kg/d)	3		9.5	14	NA	NA	3D/Week	8-Hr. comp
TSS (mg/l) [a]	3		10	15	NA	NA	3D/Week	8-Hr. Comp
TSS (kg/d)	3		9.5	14	NA	NA	3D/Week	8-Hr. comp
D.O. (mg/l)	2		NA	NA	5.0	NA	1/Day	Grab

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Fecal Coliform (N/CML)	2		200	NA	NA	NA	3D/Week (Between 10 am & 4 pm)	Grab
Enterococci (N/CML)	2		35	NA	NA	NA	3D/Week (Between 10 am & 4 pm)	Grab
Ammonia Nitrogen (NH3-N) (mg/l) [a]	2		2.4	2.4	NA	NA	1/Month	8-Hr. comp
Total Nitrogen (mg/l) [a]	1		NL	NA	NA	NA	1/Month	8-Hr. comp
Total Nitrogen - Year to Date (mg/l) [b]	1		NL	NA	NA	NA	1/Month	Calc
Total Nitrogen - Calendar Year (mg/l) [b] [c]	1		4.0	NA	NA	NA	1/Month	Calc
Total Phosphorus (mg/l) [a]	1		NL	NA	NA	NA	1/Month	8-Hr. comp
Total Phosphorus - Year to Date (mg/l) [b]	1		NL	NA	NA	NA	1/Month	Calc
Total Phosphorus - Calendar Year (mg/l) [b] [c]	1		0.30	NA	NA	NA	1/Month	Calc

*Totalizing, Indicating & Recording Equipment

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Parts I.B.8 and I.B.9. for quantification levels and reporting requirements, respectively.
[b] See Part I.B.12 for additional instructions regarding total nitrogen and total phosphorus.
[c] Annual average limitation, based on a calculation of all samples collected during the calendar year.

2. The design flow of this treatment facility is 0.25 MGD.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts.
4. At least 85% removal for BOD and TSS must be attained for this effluent.

In addition to any Total Nitrogen or Total Phosphorus concentration limits listed above, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN05001, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

The basis for the limitations codes are:
1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

TABLE II - EFFLUENT LIMITATIONS/MONITORING

OUTFALL # 101
Outfall Description: Internal discharge from potable water backwash system to the polishing pond and to outfall 001. The monitoring point shall be at the cascade aeration point prior to mixing with the WWTP discharge.

(X) Final Limits ( ) Interim Limits Effective Dates - From: Issuance of a CTO for the upgraded WWTP
To: Expiration

PARAMETER & UNITS	BASIS FOR LIMITS	DESIGN FLOW MULTIPLIER	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
			MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM	FREQUENCY	SAMPLE TYPE
Flow (MGD)	BPJ		NA	NA	NA	NL	1/Month	Estimate
pH (S.U.)	BPJ		NA	NA	6.0	9.0	1/Month	Grab
TSS (mg/l) [a]	BPJ		NA	NA	NA	NL	1/Month	Grab
Enterococci (n/cml)	BPJ		NA	NA	NA	35	1/Month	Grab

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

[a] See Parts I.B.8. and I.B.9. for quantification levels and reporting requirements, respectively.

The basis for the limitations codes are:
A. Technology (e.g., Federal Effluent Guidelines)
B. Water Quality Standards (9 VAC 25-260 et. seq.)
C. Best Professional Judgment

ATTACHMENT 6

EFFLUENT LIMITATIONS/MONITORING RATIONALE/SUITABLE DATA/ ANTIDEGRADATION/ANTIBACKSLIDING

Outfall 001

This outfall discharges wastewater from the municipal wastewater treatment plant with a design flow 0.25 MGD. The plant receives domestic wastewater from the Town of Cape Charles and vicinity. Effluent limitations are based on best professional judgment (BPJ) and water quality standards (WQS), the federal effluent guidelines, VPDES permit manual and the State Water Quality Criteria as references and guidance. The receiving stream is classified as Tier 1.

This permit contains interim and final limits for outfall 001. The permittee is in the design phase of a new WWTP to replace the existing WWTP. The new plant will have the same design flow of .25 MGD, but will include upgraded treatment to reduce nutrients and improve overall treatment of both wastewater and sludge. Since the new plant will provide enhanced nutrient treatment, nutrient regulations require that concentration limits for total phosphorus and total nitrogen be incorporated into the permit equivalent to the level of treatment that will be provided.

The new WWTP will utilize the existing outfall 001 without moving or modifying the existing outfall.

Specific effluent limitations and associated rationales follow.

Flow - Monthly Average reporting using continuous recording monitoring of flow, based on BPJ and typical for a municipal wastewater discharge. The design flow of this facility is 0.25 MGD. A corrective action plan is required if the flow reaches 95% of the design flow for three consecutive months.

pH – Limits of 6.0 S.U. Minimum and 9.0 S.U. Maximum at 1/day monitoring frequency by grab sample, based on Federal Effluent Guidelines for Secondary Treatment.

BOD_5, TSS, existing WWTP - 30 mg/l Monthly Average; 45 mg/l Weekly Average with 3 day per week monitoring by 8-hour composite sampling. This is based on secondary treatment regulations in the Federal Effluent Guidelines. The Cape Charles Harbor is listed in the Eastern Shore Water Quality Management Plan for TSS and BOD, and the facility is limited to a loading of 62.6 lb/day (28.4 kg/d) monthly average as listed in the Eastern Shore Wasteload Allocations for each parameter. **See Attachment 9.** The limit in the permit for the existing plant is 28 kg/d, meeting the loading limit in the Plan.

BOD_5, TSS, upgraded WWTP - 10 mg/l Monthly Average; 15 mg/l Weekly Average with 3 day per week monitoring by 8-hour composite sampling. This is based on BPJ, and are typical limits for these parameters in permits that the DEQ issues for the Eastern Shore. These limits are found to be representative of "self-sustaining" effluent, i.e., the effluent will not normally violate the stream

standards even if the stream consists of 100% effluent. Note: Eastern Shore Wasteload Allocation for this facility is 62.6 lbs/day (28.4 kg/d) BOD5 and TSS. The limit for BOD5 and TSS in the final permit limitations provides for a max loading of 9.5 lb/day, in compliance with the specified wasteload allocation in the Management Plan.

D.O. - Effluent limitation of 5.0 mg/l Minimum, at 1/Day frequency by grab sample, based on Water Quality Standards. The Cape Charles Harbor is known to be a low dissolved-oxygen water body, mainly due to poor flushing and the enclosed nature of the harbor. A D.O. minimum of 5.0 mg/l will prevent the discharge from causing or contributing to further D.O. problems in the harbor.

Fecal Coliform – Effluent limitation of 200 n/cml, monitored 3D/week by grab sample, based on Water Quality Standards 9 VAC 25-260-160 for discharges into Shellfish waters. The receiving stream is considered shellfish growing waters downstream of the discharge. The Health Department has previously stated that effluent limits of 200 n/cml will comply with the instream standard.

Enterococci – Effluent limitation of 35 N/CML Monthly Average, monitored 3D/week by grab sample: This limit is based on water quality standards 9 VAC 25-260-170 and included in the permit in accordance with DEQ Guidance Memo No. 03-2007 which implements Water Quality Standards for bacteriological parameters. Bacteriological effluent limitations are included in the permit to ensure proper disinfection from the treatment system which uses ultraviolet methods for disinfection instead of chlorination. This facility dismantled the chlorine disinfection system and went to strictly UV disinfection in 1996, and the proposed upgraded treatment plant will use UV exclusively also.

Ammonia Nitrogen - Effluent limits of 2.4 mg/l Monthly Average and Weekly Average, monitored 1/month by 8-hour composite samples based on water quality. Limits were developed by water quality statistical evaluation in previous permit issuances, and are determined to still be applicable and protective at this time.

Total Nitrogen, Total Phosphorus, Nitrogen year to date, Phosphorus Year to date, Nitrogen calendar year, Phosphorus calendar year –

These parameters will be implemented in the permit upon the issuance of the CTO for the upgraded plant. 9 VAC 25-40-10 et seq provide the regulations for dischargers within the Chesapeake Bay watershed, and 9 VAC 25-40-70 specifically provides for requirements for technology-based effluent concentration limitations for phosphorus and nitrogen for "any facility that has installed technology for the control of nitrogen and phosphorus whether by new construction, expansion, or upgrade. Such limitations shall be based upon the technology installed by the facility and shall be expressed as annual average concentrations." The permittee will be installing a new plant with upgraded nutrient removal technology, and so are regulated under this regulation. The Water Quality Improvement Fund Grant Agreement (#440-S-09-15)for the new WWTP contains

performance limitations for both total nitrogen and total phosphorus. These limitations are: TN = 4.0 mg/l; TP = 0.30 mg/l, both expressed as annual average concentrations. Based on the regulation 9 VAC 25-40-70 and Grant Agreement #440-S-09-15 the performance limitations for total nitrogen and total phosphorus will be included in the permit as final annual average concentration limits commencing upon issuance of the CTO for the upgraded WWTP. Monthly average nitrogen and phosphorus and year-to-date nitrogen and phosphorus monitoring will also be included upon issuance of the CTO based on Agency guidance for tracking nutrient concentrations in the discharge. Only the annual average concentrations for nitrogen and phosphorus will be limited.

In addition to any Total Nitrogen or Total Phosphorus concentration limits listed above, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN05001, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

Outfall 101

This outfall discharges potable water backwash from the potable water plant in Cape Charles to the existing WWTP at the polishing pond. Upon operation of the new WWTP, the existing WWTP will be removed from service. However, this potable water plant backwash water will still discharge to the existing polishing pond and to outfall 001. Since this will continue to discharge through the existing polishing pond and will go to outfall 001 separate of the new WWTP, an internal outfall is being developed to address this discharge. Since this wastewater will discharge to the polishing pond that received treated sewage, bacterial limitations will be in effect to ensure that there is proper disinfection of the wastewater prior to discharging to State waters. The permittee intends to clean out and remove all municipal WWTP solids from the polishing pond and use that as a "clean" pond for sedimentation of the potable water plant backwash discharge.

Specific monitoring requirements for outfall 101 follow.

Flow - NL MGD Maximum, 1/month sampling. Estimated to determine contribution of potable water backwash to receiving streams.

pH - 6.0 S.U. Minimum/9.0 S.U. Maximum, 1/month sampling. BPJ determination to be protective of the receiving stream.

TSS - NL Maximum: Sampled 1/month to determine solids that are discharged to the receiving streams. Due to the size of the pond and estimated flow to the pond and anticipated retention time in the pond, a limit was considered but was deemed by BPJ to not be

necessary at this time. The permit can be modified to include limits for TSS if data show a need to limit the solids discharged.

Enterococci – Effluent limitation of 35 N/CML Monthly Average, monitored 1/month by grab sample: This limit is based on water quality standards 9 VAC 25-260-170 and included in the permit in accordance with DEQ Guidance Memo No. 03-2007 which implements Water Quality Standards for bacteriological parameters. Bacteriological effluent limitations are included in the permit to ensure proper disinfection. The polishing pond received wastewater from the WWTP and could contain bacteria from the solids in the pond or from residual water in the pond. A limit will ensure proper disinfection prior to entering State waters. The permittee will use the current UV disinfection system while the pond is being cleared of residual solids and will use the UV system until sampling shows that disinfection is no longer needed to meet the bacteria limitation. The limitation will remain in effect during the term of the permit to ensure continued absence of bacteria in the discharge.

ATTACHMENT 2, 8 of 9

Analysis of the Town of Cape Charles STP effluent data for Ammonia-N

The statistics for Ammonia-N are:

Number of values	=	1
Detection	=	.1
Number < detection	=	Ø
Expected value	=	1Ø.49579
Variance	=	39.66Ø5
C.V.	=	.6
97th percentile	=	25.54112
Statistics used	=	Reasonable potential assumptions

The WLAs for Ammonia-N are:

Acute WLA	=	2.3761
Chronic WLA	=	8.923
Human Health WLA	=	----

The limits are based on acute toxicity and 1 samples/month.

Maximum daily limit	=	2.3761
Average monthly limit	=	2.3761

DATA
9

Sauer,Mark

From: Kennedy,John
Sent: Tuesday, July 14, 2009 12:09 PM
To: Sauer,Mark
Cc: Degen,Marcia
Subject: RE: Cape Charles WWTP VA0021288
Attachments: 09-15 Cape Charles Agreement.pdf

Mark – the WQIF grant agreement (#440-S-09-15, attached FYI) contains the following performance limitations. Both are annual averages based on the nutrient reduction technology to be installed:

- TN = 4.0 mg/l
- TP = 0.30 mg/l

You've not seen the P&S yet because the project is still under design. Final plans are scheduled to be submitted to DEQ in August.

John Kennedy
DEQ Chesapeake Bay Program
phone: 804-698-4312
NEW e-mail: john.kennedy@deq.virginia.gov

From: Sauer,Mark
Sent: Tuesday, July 14, 2009 11:48 AM
To: Degen,Marcia; Kennedy,John
Subject: Cape Charles WWTP VA0021288

Marcia and John –

I am working on reissuing the VPDES permit for the Cape Charles WWTP. They are in the process of upgrading the plant and will include nutrient removal I believe. I have never seen the plans and specs, CTC or the grant agreement for the upgraded plant, and I need to know what nutrient limits to put in the permit. They will need annual average concentration limits for nutrients once the CTO is issued for the upgraded plant, but those limits are based on the nutrient removal technology they either specified in the grant agreement or plans and specs for the CTC. If you could let me know what the nutrient removal levels they proposed or were agreed upon in the grant agreement, I would really appreciate it, so I can put those in the reissued permit. Thank you, I really appreciate it.

Mark Sauer
DEQ-TRO Water Permits Section
757-518-2105
mark.sauer@deq.virginia.gov

ARTICLE II
SCOPE OF PROJECT

2. The Grantee will cause the Project to be designed, constructed and placed in operation as described in Exhibit A to this Agreement to meet effluent concentration limitations of 4.0 mg/l for total nitrogen, and 0.30 mg/l for total phosphorus, both on an annual average basis.

ARTICLE III
SCHEDULE

3. The Grantee will cause the Eligible Project to be designed, constructed and placed in operation in accordance with the Project Schedule in Exhibit C to this Agreement.

ARTICLE IV
COMPENSATION

4.0. Grant Amount. The total grant award from the Fund under this Agreement is $6,854,526, and represents the Commonwealth's seventy-five percent (75%) share of the Total Eligible Project Budget. Any material changes made to the Eligible Project after execution of this Agreement, which alters the Total Eligible Project Budget, will be submitted to the Department for review of grant eligibility. The amount of the grant award set forth herein may be modified from time to time by agreement of the parties to reflect changes to the Eligible Project or the Total Eligible Project Budget.

4.1. Payment of Grant. Payment of the Grant is subject to the availability of monies in the Fund allocated to point source pollution control and Section 4.4 herein. Disbursement of the Grant will be in accordance with the payment provisions set forth in Section 4.2 herein and the eligibility determinations made in the Total Project Budget (Exhibit B).

4.2. Disbursement of Grant Funds. The Department will disburse the Grant to the Grantee not more frequently than once each calendar month upon receipt by the Department of the following:

(a) A requisition for approval by the Department, signed by the Authorized Representative and containing all receipts, vouchers, statements, invoices or other evidence that costs in the Total Project Budget, including the applicable local share for the portion of the project covered by such requisition, have been incurred or expended and all other information called for by, and otherwise being in the form of, Exhibit D to this Agreement.

(b) If any requisition includes an item for payment for labor or to contractors, builders or material men, a certificate, signed by the Project Engineer, stating that such work was actually performed or such materials, supplies or equipment were actually furnished or installed in or about the construction of the Eligible Project.

Upon receipt of each such requisition and accompanying certificate(s) and schedule(s), the Director shall request the Comptroller to issue a warrant directing the State Treasurer to disburse the Grant to the Grantee in accordance with such requisition to the extent approved by the Department.

Except as may otherwise be approved by the Department, disbursements shall be held at ninety-five percent (95%) of the total grant amount to ensure satisfactory completion of the Eligible Project. Upon receipt from the Grantee of the certificate specified in Section 4.6 and a final requisition detailing

all retainage to which the Grantee is then entitled, the Director, subject to the provisions of this section and Section 4.4 herein, shall request the Comptroller to issue a warrant directing the State Treasurer to disburse to the Grantee the final payment from the Grant.

4.3 Application of Grant Funds. The Grantee agrees to apply the Grant solely and exclusively to the reimbursement of Eligible Project Costs.

4.4. Availability of Funds. The Director and Grantee recognize that the availability of monies in the Fund allocated to point source pollution control is subject to appropriation by the General Assembly and allocations made by the Secretary of Natural Resources, and that at times there may not be sufficient monies in the Fund to permit prompt disbursement of grant funds due and owing the Grantee pursuant to this Agreement. To minimize the potential for such disruption in disbursements of grant funds and in satisfaction of its obligations under the Act, the Department covenants and agrees to (1) manage the allocation of grants from the Fund to ensure full funding of executed grant agreements, (2) forecast the estimated disbursements from the Fund in satisfaction of approved grants and make this forecast publicly available each year for use in the Commonwealth's budgetary process, and (3) promptly disburse to the Grantee any grant funds due and owing the Grantee pursuant to this Agreement when sufficient monies are available in the Fund to make such disbursements. The Department may determine that monies are not sufficient to promptly disburse grant funds when there are competing grant requests. To assist the Department in forecasting estimated disbursements, prior to September 30 of each year the Grantee will provide the Department with a written estimate of its projected expenditures on the Project during the next fiscal year using the same line item cost categories in the Project Budget.

4.5. Agreement to Complete Project. The Grantee agrees to cause the Project to be designed and constructed, as described in Exhibit A to this Agreement, and in accordance with (i) the schedule in Exhibit C to this Agreement and (ii) plans and specifications prepared by the Project Engineer and approved by the Department.

4.6 Notice of Substantial Completion. When the Project has been completed, the Grantee shall promptly deliver to the Department a certificate signed by the Authorized Representative and by the Project Engineer stating (i) that the Project has been completed substantially in accordance with the approved plans and specifications and addenda thereto, and in substantial compliance with all material applicable laws, ordinances, rules, and regulations; (ii) the date of such completion; (iii) that all certificates of occupancy and operation necessary for start-up for the Project have been issued or obtained; and (iv) the amount, if any, to be released for payment of the final Project Costs.

ARTICLE V
PERFORMANCE

5.0 The Grantee's Facility shall meet a total nitrogen effluent concentration limitation of 4.0 mg/l, and a total phosphorus effluent concentration limitation of 0.30 mg/l, both on an annual average basis, except as provided in paragraph 5.1 and Article VIII of this Agreement.

5.1 If, pursuant to Section 10.1-1187.6 of the Code, the State Water Control Board approves an alternative compliance method to technology-based concentration limitations in Virginia Pollutant Discharge Elimination System permits, the concentration limitations in Section 5.0 above shall be suspended subject to the terms of such approval. The terms of approval shall include requirements for operation of the installed Nutrient Removal Technology at the treatment levels for which it was designed.

EXHIBIT A
PROJECT DESCRIPTION

Grantee: Town of Cape Charles
Grant: #440-S-09-15

The existing Cape Charles Wastewater Treatment Plant (WWTP) has a permitted design flow of 0.25 million gallons per day (MGD) and achieves secondary treatment using a contact stabilization package plant followed by an effluent polishing pond and ultraviolet disinfection. Waste sludge is sent to drying beds and dewatered solids are sent to a landfill for disposal.

The Town intends to install nutrient reduction technology (NRT) for nitrogen and phosphorus removal in a new 0.25 MGD facility. A Preliminary Engineering Report (PER) for the project, dated 6/17/08, was followed by a 3/9/09 Addendum that revised the scope of work to delete an expansion to 0.5 MGD, and just maintain the existing design flow. Additional materials submitted to DEQ included several Technical Memoranda and other documents covering peak flow conditions, solids generation, and results of a Value Engineering Analysis. The PER evaluated four nutrient removal options, and based on the factors of reliability, constructability, operational impact, and capital and annual cost comparisons, the selected alternative for the new 0.25 MGD WWTP is a membrane bioreactor (MBR) system operated as a 4-stage Bardenpho process.

This project consists of various facilities included in the PER and its Addendum which are intended to achieve nutrient discharge compliance. Processes being installed, and their grant eligibility as NRT, are described as follows.

Preliminary Treatment (not grant eligible): Headworks, Emergency Overflow Tank and Pumping.

Biological Treatment (grant eligible) and Solids Separation Processes (partially grant eligible):

- Fine Screens.
- Two Bioreactors, with zones dedicated to pre-anoxic, aerobic, and post-anoxic treatment. Integral mixed liquor and nitrate recycles are also provided.
- Two Membrane Tanks with support equipment housed in a Process Building; each train containing three membrane cassettes for a total of six cassettes. Each tank is provided with permeate pumps that draw a vacuum across the membranes, with reverse operation providing back-pulse cleaning. The membranes eliminate the need for secondary clarifiers and effluent filters.

Chemical Addition (grant eligible):

- Supplemental Carbon Feed System for denitrification; designed to accommodate multiple non-hazardous supplemental carbon sources (e.g., sugar water, glycerin, etc.).
- Alum Feed System for phosphorus removal.

Post Treatment (not grant eligible): UV Disinfection, Post-Aeration, Effluent Flowmeter, and Outfall Extension.

Solids Processing (partially grant eligible): Building and Waste Sludge Holding Tanks.

Miscellaneous: (partially grant eligible)

- Operations Building.
- Plant Water System.
- Plant Recycle System.
- Yard Piping, General Site Work and Electrical Costs.

EXHIBIT C

PROJECT SCHEDULE

Grantee: Town of Cape Charles
Grant: #440-S-09-15

The Grantee has proposed the following schedule of key activities/milestones as a planning tool which may be subject to change. In particular, the Grantee acknowledges that the appropriate approval (Certificate to Construct) must be issued by the Department prior to proceeding with construction. Unless authorized by a grant modification, it is the responsibility of the Grantee to adhere to the anticipated schedule for the project as follows:

Activity	Date/Duration
a. Final Plans and Specifications Submitted	8/7/09
b. Advertise for Bids	8/7/09
c. Certificate to Construct Issued by DEQ	9/17/09
d. Award Construction Contract	10/8/09
e. Statement of Substantial Completion	10/14/11
f. Certificate to Operate Issued by DEQ	10/28/11

ATTACHMENT 7

SPECIAL CONDITIONS RATIONALE

VPDES PERMIT PROGRAM
LIST OF SPECIAL CONDITIONS RATIONALE

Name of Condition:

B. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

1. Sludge Reopener

Rationale: Required by the VPDES Permit Regulation, 9 VAC 25-31-220 C., and 40 CFR 122.44 (c)(4), which note that all permits for domestic sewage treatment plants (including sludge-only facilities) include any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act.

2. Nutrient Enriched Waters Reopener

Rationale: Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the draft 2004 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that 83% of the mainstem Bay does not fully support this use support goal under Virginia's water quality assessment guidelines. Nutrient enrichment is cited as one of the primary causes for impairment.

Guidance Memorandum 04-2017 implements DEQ's best professional judgment decision to limit increases in nutrient loading from facilities listed on the Chesapeake Bay Program Significant Discharger List. Guidance Memorandum 04-2017 provides the basis for this decision and specifies the procedure for determining annual effluent limitations for these parameters for each affected facility, as well as monitoring requirements and a special condition to be included in each affected permit. Additionally, Guidance Memorandum 04-2017 includes a special condition for submittal of a Basis of Design Report to construct and operate a range of nutrient removal technologies, including but not limited to the limit of technology, as well as a special condition requiring consideration of alternatives and submittal of a plan to optimize nutrient removal with the existing facility. In accordance with the guidance memorandum, this permit contains a special condition requiring submittal of these reports.

3. Total Maximum Daily Load (TMDL) Reopener

Rationale: For specified waters, Section 303(d) of the Clean Water Act requires the development of total maximum daily loads necessary to achieve the applicable water quality standards. The TMDL must take into account seasonal variations and a margin of safety. In addition, Section 62.1-44.19:7 of the State Water Control Law requires the development and implementation of plans to address impaired waters, including TMDLs. This condition allows for the permit to be either modified or, alternatively, revoked and reissued to incorporate the requirements of a TMDL once it is developed. In addition, the reopener recognizes that, in according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan or other wasteload allocation prepared under Section 303 of the Act.

4. Licensed Operator Requirement

Rationale: The Permit Regulation, 9 VAC 25-31-200 D and Code of Virginia 54.1-2300 et. seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators.

5. Reliability Class

Rationale: Required by Sewage Collection and Treatment Regulations, 12 VAC 5-581-20 and 120 for all municipal facilities.

6. CTC, CTO and O & M Manual Requirements

Rationale: Required by the State Water Control Law, Section 62.1-44.19; the Sewage Collection and Treatment Regulations (12 VAC 5-581 et seq); Section 401 of the Clean Water Act; 40 CFR 122.41(e); and the VPDES Permit Regulation (9 VAC-25-31-190E).

7. 95% Design Capacity Notification

Rationale: Required by the VPDES Permit Regulation, 9 VAC 25-31-200 B.2. for all POTW and PVOTW permits. Best professional judgement is used to apply this condition to other (private) municipal treatment facilities.

8. Quantification Levels Under Part I.A.

Rationale: States are authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR part 130, Water Quality Planning and Management, subpart 130.4. Section b. of the special condition defines QL and is included per BPJ to clarify the difference between QL and MDL.

9. Compliance Reporting Under Part I.A.

Rationale: Defines reporting requirements for toxic parameters and some conventional parameters with quantification levels to ensure consistent, accurate reporting on submitted reports.

10. Indirect Dischargers

Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B.1. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

11. Sludge Management Plan

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-420, and 40 CFR 503.1 specify the purpose and applicability for sludge management plans. The VPDES Permit Regulation, 9 VAC 25-31-100 J.4., also sets forth certain detailed information which must be included in a sludge management plan. The VPDES sewage sludge permit application form and its attachments constitute the sludge management plan and will be considered for approval with the VPDES permit. In addition, the Biosolids Use Regulation, 12 VAC 5-585-330 and 340, specifies the general purpose and control requirements for an O&M manual in order to facilitate proper O&M of the facilities to meet the requirements of the regulation.

12.Nutrient Reporting Calculations

Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed toloads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

C. PRETREATMENT

USE THIS LANGUAGE FOR POTWS WITH FLOWS >.04 MGD AND DO NOT HAVE AN APPROVED PRETREATMENT PROGRAM OR A CONDITIONAL PROGRAM

Rationale: The permit regulation, 9 VAC 25-31-10 et seq., Part VII, establishes the legal requirements for State, local government and industry to implement National Pretreatment Standards. The Pretreatment Standards are implemented to prevent POTW plant pass through, interference, violation of water quality standards or contamination of sewage sludge. The regulation requires POTWs with a total design flow greater than 5 MGD with significant or categorical industrial input to establish a Pretreatment Program. The regulation also may apply to POTWs with design flows less than 5 MGD if circumstances warrant control of industrial discharges.

ATTACHMENT 8

MATERIAL STORED

The materials stored at the existing and the new WWTP will be materials normally and usually utilized at a secondary WWTP. No unusual or extraordinary materials or chemicals are utilized or stored at the site.

ATTACHMENT 9

RECEIVING WATERS INFO./ TIER DETERMINATION/STORET DATA/ STREAM MODELING / IMPAIRED SEGMENTS / TMDL's

M E M O R A N D U M

Department of Environmental Quality
Tidewater Regional Office

5636 Southern Boulevard — Virginia Beach, VA 23462

SUBJECT: VPDES Application Requests
~~FROM~~ TO: Stephen Cioccia, TRO
~~FROM~~: Mark Sauer, TRO
DATE: 7/13/09
COPIES: TRO File - facility #106, PPP

An application has been received for the following facility:

VPDES #: VA0021288 Facility Name: Cape Charles WWTP

Topo Map Name: Cape Charles

Receiving Stream: Cape Charles Harbor
[Must be provided for each outfall included in this request or request will be returned]

Attached is a Topographic Map showing facility property boundaries and outfall location(s)for those included in this request. **[MUST be provided or request will be returned]**

Attached is a stream data Request Form **(if data is requested).**

We request the following information from you:

1. __X__ Tier Determination. Tier: 1 (discharge to impaired receiving stream) Outfall 001
Please include a basis for the tier determination. See attachment 1

2. Not requested Stream Data Requested for outfall(s) _____
["STREAM DATA RETRIEVAL REQUEST FORM" MUST be completed & included]

3. __X__ Is this facility mentioned in a Management Plan?

_____ No ✓ Yes _____ No, but will be included when the Plan is updated.

4. __X__ Are limits contained in a Management Plan?

_____ No ✓ Yes **(If Yes, Please include the basis for the limits.)** See attachment 2

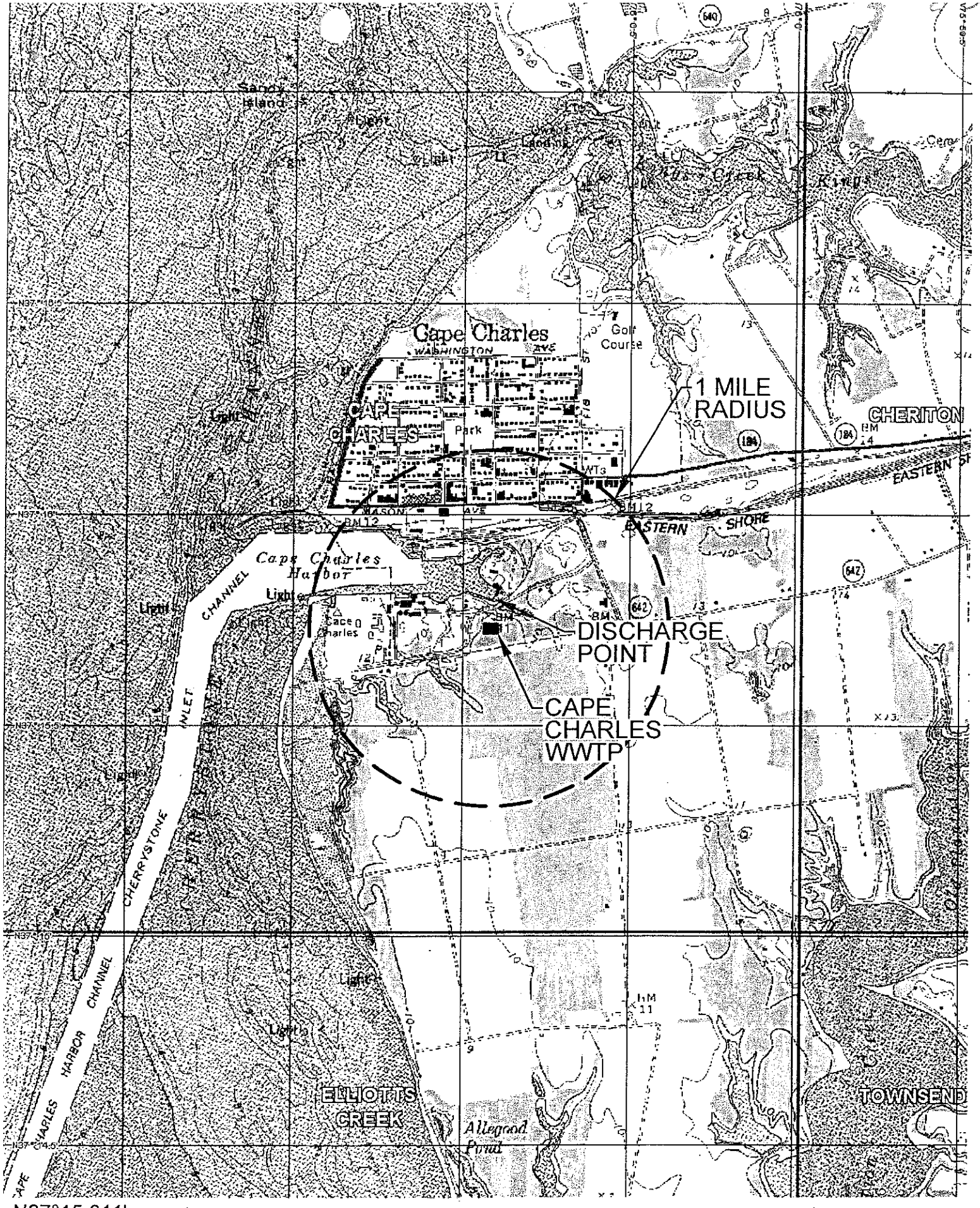
5. __X__ Indicate outfall(s) which discharge directly to an impaired (Category 5) stream segment? 001

6. __X__ Are outfall(s) WLAs contained in an approved TMDL?

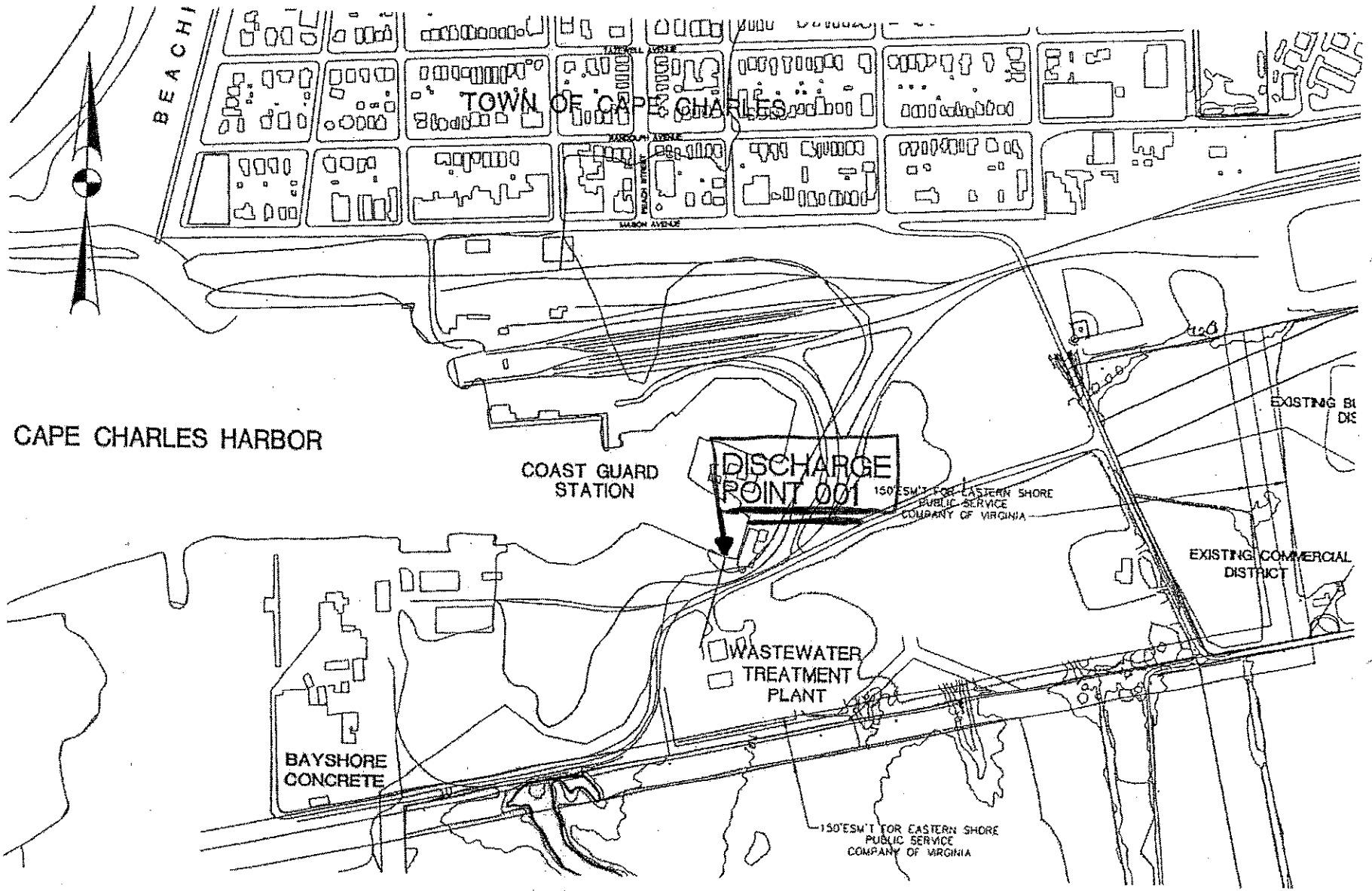
✓ No _____ Yes **(If Yes, Please include the WLAs)**

Return Date Requested: 7/21/09

Date Returned: 7/20/09



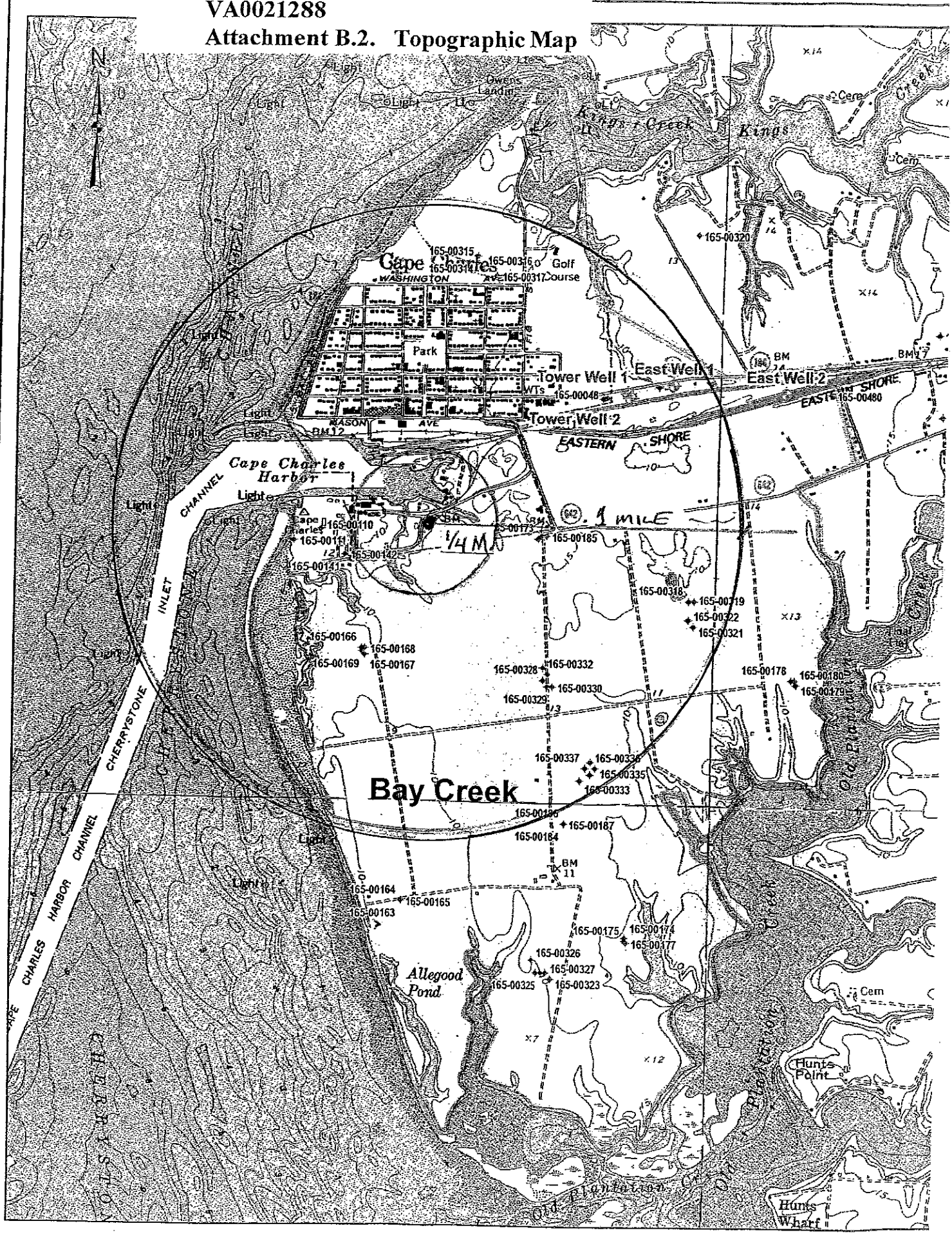
CAPE CHARLES TOPO
EXHIBIT 3A

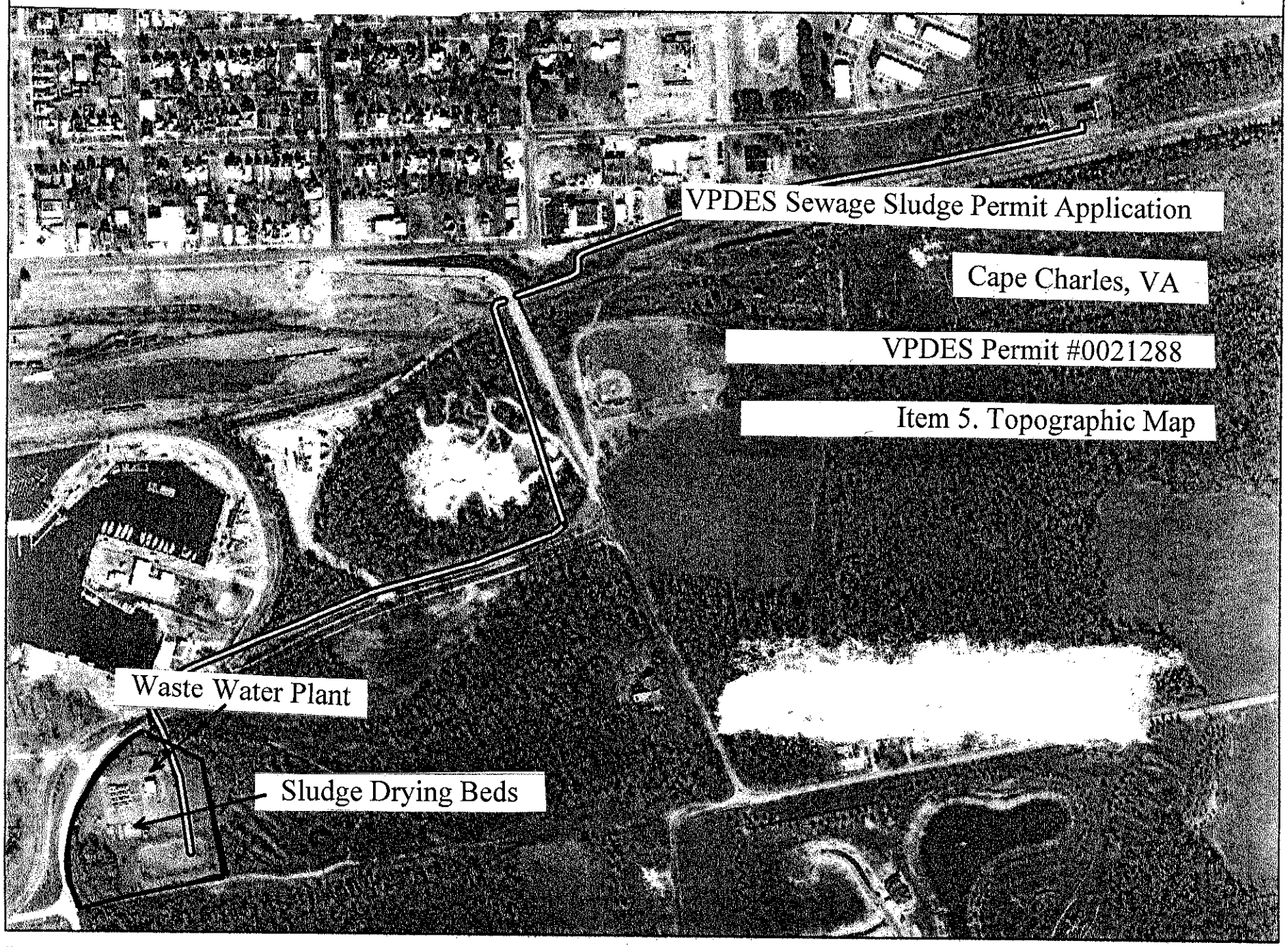


TOWN OF CAPE CHARLES
LOCATION MAP OF WWTP DISCHARGE POINT

SCALE: 1"=600'

Cape Charles
VA0021288
Attachment B.2. Topographic Map





Map created December 18, 2006 by the Town of Cape Charles

Data Source: Northampton County Planning Department

List of Impaired (Category 5) Waters in 2008 IR

Assessment Unit ID	Waterbody Name	City / County*		Assessment Unit Description
VAT-C16E_CCH01A04	**Cape Charles Harbor - Upper**	NORTHAMPTON	CO	From most upstream end of harbor downstream to 1/2 distance to mouth (RM 0.23). Portion of CBP segment CB7PH. DSS ADMINISTRATIVE shellfish harvesting condemnation # 089-011 B (effective 20051202) (VPDES outfall Town of Cape Charles STP VA0021288).

VA Overall AU 5A — 0.06 SQUARE MILES

Beneficial Use	Impairment	Cause Category	First Listed on 303(d)	TMDL Schedule	Impairment Specific Comments and/or Impairment Specific VA Category
Aquatic Life	**Aquatic Plants**	Category 5A 2006 76092 /	**2006**	**2010**	Category 5A 2006 76092 / 2008 CB7PH-SAV-BAY The Shallow-Water Submerged Aquatic Vegetation Use is impaired based on failure to meet the SAV acreage criteria.

Sources:
- Agriculture
- Atmospheric Deposition - Nitrogen
- Clean Sediments
- Industrial Point Source Discharge
- Internal Nutrient Recycling
- Loss of Riparian Habitat
- Municipal Point Source Discharges
- Sediment Resuspension (Clean Sediment)
- Sources Outside State Jurisdiction or Borders
- Wet Weather Discharges (Non-Point Source)
- Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

Aquatic Life	**Oxygen, Dissolved**	Category 5A 2006 01767 /	**2006**	**2010**	Category 5A 2006 01767 / 2008 CB7PH-DO-BAY The Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. There are insufficient data to assess the Open Water - Record of Year (ROY) Use.

Sources:
- Agriculture
- Atmospheric Deposition - Nitrogen
- Industrial Point Source Discharge
- Internal Nutrient Recycling
- Loss of Riparian Habitat
- Municipal Point Source Discharges
- Sources Outside State Jurisdiction or Borders
- Wet Weather Discharges (Non-Point Source)
- Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

Attachment 2-2

List of Impaired (Category 5) Waters in 2008 IR

Assessment Unit ID	Waterbody Name		City / County*		Assessment Unit Description
Fish Consumption	**PCB in Fish Tissue**	Category 5A	**2006**	**2018**	Category 5A 2006 76068 / 2008 C01E-17-PCB The Fish Consumption Use is impaired based on the VDH fish consumption advisory for PCBs fish tissue contamination within the Chesapeake Bay issued 12/13/04. Previous Use ID (2006 IR) as TMDL ID: VDH-Bay PCBs.
			Sources: Source Unknown		
Open-Water Aquatic Life	**Oxygen, Dissolved**	Category 5A	**2006**	**2010**	Category 5A 2006 01767 / 2008 CB7PH-DO-BAY The Open-Water Aquatic Life Use is impaired based on failure to meet the dissolved oxygen criteria for Open Water - Summer. There are insufficient data to assess the Open Water -Record of Year (ROY) Use.
			Sources: Agriculture Atmospheric Deposition - Nitrogen Industrial Point Source Discharge Internal Nutrient Recycling Loss of Riparian Habitat Municipal Point Source Discharges Sources Outside State Jurisdiction or Borders Wet Weather Discharges (Non-Point Source) Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)		
Recreation	**Enterococcus**	Category 5A	**2004**	**2016**	Category 5A 2006 01453 / 2008 C16E-01-BAC The Recreation Use is impaired (6 violate / 25 obs.) due to exceedance of the instantaneous criteria for Enterococcus bacteria at station 7-CCH000.43. Use ID = VAT-C16E-01.
			Sources:		

Attachment 1-2

List of Impaired (Category 5) Waters in 2008 IR

Assessment Unit ID	Waterbody Name		City / County*		Assessment Unit Description
Shallow-Water Submerged Aquatic Vegetation	**Aquatic Plants**	Category 5A	**2006**	**2010**	Category 5A 2006 76092 / 2008 CB7PH-SAV-BAY The Shallow-Water Submerged Aquatic Vegetation Use is impaired based on failure to meet the SAV acreage criteria.

Sources: Agriculture
Atmospheric Deposition - Nitrogen
Clean Sediments
Industrial Point Source Discharge
Internal Nutrient Recycling
Loss of Riparian Habitat
Municipal Point Source Discharges
Sediment Resuspension (Clean Sediment)
Sources Outside State Jurisdiction or Borders
Wet Weather Discharges (Non-Point Source)
Wet Weather Discharges (Point Source and Combination of Stormwater, SSO or CSO)

Attachment Z-3

Small Coastal and Chesapeake Bay

TABLE B2 - EASTERN SHORE WASTELOAD ALLOCATIONS

NAME	RECEIVING STREAM OR ESTUARY	INTERIM WASTELOAD ALLOCATIONS[1] (Current Permit Limits) BOD_5 (lb/d)	SUSPENDED SOLIDS (lb/d)	OIL & GREASE (lb/d)	FINAL WASTELOAD ALLOCATIONS BOD_5 (lb/d)	SUSPENDED SOLIDS (lb/d)	OIL & GREASE (lb/d)
Commonwealth of Va. Rest Area	Pitts Cr.	4.3	4.3	--	4.3	4.3	--
Edgewood Park	Bullbegger Cr.	0.80	0.80	--	0.80	0.80	--
Holly Farms	Sandy Bottom Cr.	167[3]	167[3]	10 mg/l	Stream survey/model and determination of final wasteload allocations planned for the summer of 1980.		
Taylor Packing Company	Messongo Cr.	7006[3]	13010[3]	--	Stream survey/model was run previously. No change in permit anticipated.		
No. Accomack E.S.	Messongo Cr.	1.8	1.4	--	1.8	1.4	--
Messick & Wessels Nelsonia	Muddy Cr.	30mg/l[4]	30mg/l[4]	--	Interim wasteload allocations may be changed based on BAT guidance.		
Whispering Pines Motel	Deep Cr.	4.8	4.8	--	4.8	4.8	--
Town of Onancock	Onancock Cr.	21	21	--	21	21	--
Messick & Wessels	Onancock Cr.	30mg/l[4]	30mg/l[4]	--	Interim wasteload allocations may be changed based on guidance.		
So. Accomack E.S.	Pungoteague Cr.	1.8	1.4	--	1.8	1.4	--
A & P Exmore	Nassawadox Cr.	0.38	0.38	--	0.38	0.38	--
Norstrom Coin Laundry	Nassawadox Cr.	60mg/l[4] max.	60mg/l[4] max.	--	Interim wasteload allocation may be changed based on BAT guidance.		
NH-Acc. Memorial Hospital	Warehouse Cr.	12.5	12.5	--	21.5	12.5	--
Machipongo E.S. & H.H. Jr. High	Trib. To Oresbus Cr.	5.2	5.2	--	5.2	5.2	--
Town of Cape Charles	Cape Charles Harbor	62.6	62.6	--	62.6	62.6	--
America House	Chesapeake Bay	5	5	--	5	5	--
U.S. Coast Guard Chesapeake Bay	Chesapeake Bay	--	--	10/mgl[5]	--	--	10/mgl[5]
U.S. Government Cape Charles AFB	Magothy Bay	Currently No Discharge					
Exmore Foods (Process Water)	Trib. To Parting Cr.	200	100	--	Stream survey/model and determination of final wasteload allocations planned for the summer of 1980.		
Exmore Foods (Sanitary)	Trib. To Parting Cr.	30mg/l[5]	30mg/l[5]	--	30mg/l[5]	30mg/l[5]	--
Perdue Foods (process water)	Parker Cr.	May-Oct 275 367 Nov-Apr. 612 797	--	--	Interim Permit in process. Stream survey/models were run. No substantial change in permit anticipated. * See attached		
Perdue Foods (parking lot)	Parker Cr.	30mg/l[5]	30mg/l[5]	--	30mg/l[5]	30mg/l[5]	--
Accomack Nursing Home	Parker Cr.	2.7	2.6	--	2.7	2.6	--
U.S. Gov't NASA Wallops Island	Mosquito Cr.	75	75	--	75	75	--
U.S. Gov't NASA Wallops Island	Cat Cr.	1.25	1.25	--	1.25	1.25	--
F & G Laundromat	Chincoteague Channel	10	4.8	--	Interim wasteload allocations may be changed based on BAT guidance.		
U.S. Coast Guard	Chincoteatue Channel	--	--	15mg/l (max.)	--	--	15mg/l (max.)
Virginia- Carolina Seafood	Chincoteague Bay	342	264	5.5	342	264	5.5
Reginald Stubbs Seafood Co. (VA0005813)	Assateague Channel	--	20	95	--	20	95
Reginald Stubbs Seafood Co. (VA00056421)	Assateague Channel	--	20	98	--	20.4[2]	98
Shreaves	Chincoteague Bay	--	16[2]	1.4[2]	--	16[2]	1.4[2]
Chincoteague Seafood	Chincoteague Bay	342	264	5.5	342	264	5.5

Attachment 2-1

10B, 11B, 12B	Trammel-McClure	WQ	Permit to be issued in future			Not on priority list.
9T	Wise	WQ	0.28	112	112	Step I in progress (with Norton).

[1] Dischargers are shown on Plate 3-B (Map No. with "B" designates Big Sandy) and 3-T (Map No. with "T" designates Tennessee).

[2] Effluent Limiting (EL) or Water Quality (WQ).

[3] For existing sewage treatment facility.

[4] For new sewage treatment facility.

*Seasonal NPDES allowable loading: April to September/October to March.

Source: Thompson & Litton and State Water Control Board.

9 VAC 25-720-100. Chowan Rive-Dismal Swamp River Basin (Reserved).

9 VAC 25-720-110. Chesapeake Bay – Small Coastal – Eastern Shore River Basin.

A. Total maximum Daily Load (TMDLs).

B. Stream segment classifications, effluent limitations including water quality based effluent limitations, and waste load allocations.

Small Coastal and Chesapeake Bay-

TABLE B1 - CURRENT STREAM SEGMENT CLASSIFICATION

Segment No.	Name	Current State Class
7-12A	Pocomoke Sound	EL
7-12B	Messongo Creek	EL
7-12C	Beasley Bay	EL
7-12D	Chesconessex Creek	EL
7-13	Onancock Creek	WQ
7-14	Pungoteague	WQ
7-12E	Nandua Creek	EL
7-15	Occohannock Creek	WQ
7-12F	Nassawadox Creek	EL
7-12G	Hungars Creek	EL
7-12H	Cherrystone Inlet	EL
7-12I	South Bay	EL
7-12J	Tangier Island	
7-11A	Chincoteague	EL
7-11B	Hog Bogue	EL
7-11C	Metomkim Bay	EL
7-11D	Machipongo River	EL
7-11E	South Ocean	EL

Attachment 2-2

COMMONWEALTH of VIRGINIA

Department of Health
DIVISION OF SHELLFISH SANITATION
109 Governor Street, Room 614-B
Richmond, VA 23219

Ph: 804-864-7487
Fax: 804-864-7481

MEMORANDUM

DATE: 7/20/2009

TO: Mark H. Sauer
Department of Environmental Quality

FROM: Robert E. Croonenberghs, Ph.D., Director
Division of Shellfish Sanitation

SUBJECT: Cape Charles WWTP

City / County: Northampton County

Waterbody: Cape Charles Harbor / Chesapeake Bay

Type: ☑ VPDES ☐ VMRC ☐ VPA ☐ VWP ☐ JPA ☐ Other:

Application / Permit Number: VA0021288

☐ The project will not affect shellfish growing waters.

☐ The project is located in approved shellfish growing waters, however, the activity as described will not require a change in classification.

☑ The project is located in condemned shellfish growing waters and the activity, as described, will not cause an increase in the size or type of the existing closure.

☐ The project will affect condemned shellfish waters and will not cause an increase in the size of the total condemnation. However, a prohibited area (an area from which shellfish relay to approved waters for self-purification is not allowed) will be required within a portion of the currently condemned area. See comments.

☐ A buffer zone (including a prohibited area) has been previously established in the vicinity of this discharge, however, the closure will have to be revised. Map attached.

☐ This project will affect approved shellfish waters. If this discharge is approved, a buffer zone (including a prohibited area) will be established in the vicinity of the discharge. Map attached.

☐ Other.

ADDITIONAL COMMENTS:

Area #: 89

bks

ATTACHMENT 10

TABLE III(a) AND TABLE III(b) - CHANGE SHEETS

TABLE III(a)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL
001 (final limits with the upgraded WWTP)	BOD/TSS	No Change	From 30 mg/l and 45 mg/l To 10 mg/l and 15 mg/l	Limits for BOD and TSS will change from secondary limits to more stringent limits with the CTO for the upgraded plant. This is consistent with other WWTP's on the Eastern Shore.	7/14/04
101 (final limits with the upgraded WWTP)	Outfall added to the permit; parameters include flow, pH, TSS and enterococci	None / 1/month	None / flow - NL pH - 6.0/9.0 TSS - NL Enterococci - 35	The potable water plant will still discharge to the existing WWTP polishing pond after the new WWTP is operational; these limits will address the continued discharge from the existing pond.	7/14/04

TABLE III(a)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL
Schedule of Compliance for enterococci	Compliance schedule has been removed from the permit; time frame in the schedule is up, limits are now effective.	7/14/9

TABLE III(b)

VPDES PERMIT PROGRAM
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes MADE DURING PERMIT PROCESS and give a brief rationale for the changes).

OUTFALL NUMBER	PARAMETER CHANGED	MONITORING LIMITS CHANGED FROM / TO	EFFLUENT LIMITS CHANGED FROM / TO	RATIONALE	DATE & INITIAL

OTHER CHANGES FROM:	CHANGED TO:	DATE & INITIAL

ATTACHMENT 11

EPA PERMIT CHECKLIST

State "Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Cape Charles WWTP

NPDES Permit Number: VA0021288

Permit Writer Name: Mark Sauer

Date: July 15, 2009

Major [ ] **Minor** [X] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?		X	
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?		X	
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		

I.B. Permit/Facility Characteristics - cont.	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?		X	
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?		X	
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?			X
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?			X
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs

(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
II.D. Water Quality-Based Effluent Limits – cont.	**Yes**	**No**	**N/A**
3. Does the fact sheet provide effluent characteristics for each outfall?	X		

4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		

5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions
Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset
Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Mark Sauer
Title	Permit Writer
Signature	
Date	7/15/09

ATTACHMENT 12

CHRONOLOGY SHEET